

## WEST Search History

DATE: Monday, May 22, 2006

<b>Hide?</b>	<b><u>Set Name</u></b>	<b><u>Query</u></b>	<b><u>Hit Count</u></b>
		<i>DB=PGPB; THES=ASSIGNEE; PLUR=YES; OP=ADJ</i>	
<input type="checkbox"/>	L4	(PIM or PIM-1 or PIM-2 or PIM-3) same(crystal or x-ray) and kinase	9
		<i>DB=USPT,USOC,EPAB,JPAB,DWPI; THES=ASSIGNEE; PLUR=YES; OP=ADJ</i>	
<input type="checkbox"/>	L3	(PIM or PIM-1 or PIM-2 or PIM-3) same(crystal or x-ray) and kinase	5
<input type="checkbox"/>	L2	(PIM or PIM-1 or PIM-2 or PIM-3) same(crystal or x-ray)	80
<input type="checkbox"/>	L1	(PIM or PIM-1 or PIM-2 or PIM-3) and (crystal or x-ray)	548

END OF SEARCH HISTORY

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Search Results - Record(s) 1 through 5 of 5 returned.

☐ 1. Document ID: WO 2004090106 A2

Using default format because multiple data bases are involved.

L3: Entry 1 of 5

File: EPAB

Oct 21, 2004

PUB-NO: WO2004090106A2

DOCUMENT-IDENTIFIER: WO 2004090106 A2

TITLE: CRYSTAL STRUCTURES OF HUMAN PIM-1 KINASE PROTEIN COMPLEXES AND BINDING POCKETS THEREOF, AND USES THEREOF IN DRUG DESIGN

PUBN-DATE: October 21, 2004

INVENTOR-INFORMATION:

NAME

COUNTRY

JACOBS, MARC L

US

HARE, BRIAN

US

SWENSON, LOVORKA

US

INT-CL (IPC): C12 N 0/

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. D.
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☐ 2. Document ID: WO 2004024895 A2

L3: Entry 2 of 5

File: EPAB

Mar 25, 2004

PUB-NO: WO2004024895A2

DOCUMENT-IDENTIFIER: WO 2004024895 A2

TITLE: CRYSTAL STRUCTURE OF PIM-1 KINASE

PUBN-DATE: March 25, 2004

INVENTOR-INFORMATION:

NAME

COUNTRY

BREMER, RYAN

US

IBRAHIM, PRABHA

US

KUMAR, ABHINAV

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MANDIYAN, VALSAN

US

MILBURN, MICHAEL V

US

INT-CL (IPC): C12 N 0/

EUR-CL (EPC): C12N009/12

## ABSTRACT:

CHG DATE=20050618 STATUS=O>A crystal structure of PIM-1 is described that was determined by X-ray crystallography. The use of PIM-1 crystals and structural information can, for example, be used for identifying molecular scaffolds and for developing ligands that bind to and modulate PIM- 1 and other PIM kinases.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw. De
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☐ 3. Document ID: US 20050164300 A1, WO 2005028624 A2

L3: Entry 3 of 5

File: DWPI

Jul 28, 2005

DERWENT-ACC-NO: 2005-273155

DERWENT-WEEK: 200550

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TITLE: New scaffold library used for identifying and developing ligands for protein kinases and treating kinase associated disorders e.g. cancer, comprises set of compounds comprising N-heterocyclic compounds

INVENTOR: ARTIS, D R; BREMER, R E ; GILLETTE, S J ; HURT, C R ; IBRAHIM, P L ; ZUCKERMAN, R L

PRIORITY-DATA: 2003US-503277P (September 15, 2003), 2004US-0941635 (September 15, 2004)

## PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
US 20050164300 A1	July 28, 2005		000	G01N033/53
WO 2005028624 A2	March 31, 2005	E	236	C12N000/00

INT-CL (IPC): C12 N 0/00; G01 N 33/48; G01 N 33/50; G01 N 33/53; G06 F 19/00

ABSTRACTED-PUB-NO: WO2005028624A

## BASIC-ABSTRACT:

NOVELTY - New kinase scaffold library comprises at least 1 set of compounds, each set comprising at least 1 N-heterocyclic compound (I)-(VII).

DETAILED DESCRIPTION - New kinase scaffold library comprises at least 1 set of compounds, each set comprising at least 1 N-heterocyclic compound of formula (I)-(VII).

R1 = G, H, C(X)R20, C(X)NR16R17, SO2R21 or SO2NR16R17;

G = lower alkyl, lower alkenyl, lower alkynyl, cycloalkyl, heterocyclalkyl, aryl, aralkyl, heteroaryl or heteroaralkyl (all optionally substituted);

R2 = G, H, C(X)NR16R17, NR22R23, SO2R21 or SO2NR16R17;

R3-R6 = alkoxy, thioalkoxy or amine (all optionally substituted), G, H, halo, OH, C(X)R20, C(X)NR16R17, SO2NR16R17 NR22R23 or SO2R21;

R16, R17 = G, or

R16 + R17 = 5-7 membered carbocyclyl or heterocyclyl;

R20 = lower alkoxy or amine (both optionally substituted), G or OH;

R21 = lower alkoxy (optionally substituted) or G;

R22, R23 = G, H, C(X)R20, C(X)NR16R17 or SO2NR21;

W', Y', Z = O, S, N or CR2;

Q = N or C;

X = O or S;

n = 1 or 2;

R1a = alkoxy, thioalkoxy or amine (all optionally substituted), G, H, halo, OH, C(X)R2a, C(X)NR3aR4a, SO2NR3aR4a, NR3aR4a or SO2R5;

A, B', C', D = O, S, NR3a or CR11;

R2a = lower alkoxy or amine (both optionally substituted), G or OH;

R3a, R4a = G or H;

R5 = lower alkoxy or amine (both optionally substituted) or G;

R11 = alkoxy, thioalkoxy or amine (all optionally substituted), G, OH, C(X)R2a, C(X)NR3aR4a, SO2NR3aR4a, NR3aR4a or SO2R5;

R1b = alkoxy, thioalkoxy or amine (all optionally substituted), G, H, halo, OH, C(X)R4b, C(X)NR5bR6b, SO2NR5bR6b, NR5bR6b or SO2R7;

R4b = lower alkoxy or amine (both optionally substituted), G or OH;

R5b, R6b = G or H, or

R5b + R6b = 5-7 membered carbocyclyl or heterocyclyl;

R7 = lower alkoxy or amine (both optionally substituted) or G;

R1c = G, NR16aR17a, OR21a or SR21a;

R2c, R3c = G, C(X)R20, C(X)NR16aR17a, C(X)R20 or C(X)NR16aR17a;

R16a, R17a = H or G, or

R16a + R17a = carbocyclyl or heterocyclyl;

R21a = G;

R1d, R7a = alkoxy or thioalkoxy (both optionally substituted), G, H, OH, NR16bR17b, C(X)R20, C(X)NR16bR17b, S(O)2R21b, or when 1 of them is NR16bR17b, OH, alkoxy, thioalkoxy, aralkyl or heteroaralkyl and the other is H, then

R1d + R7 = =NR16b, =O, =S, =C-aryl or =C-heteroaryl;

R2d = G, H, halo, C(X)R20 or C(X)NR16bR17b;

R3d-R6d = alkoxy, thioalkoxy or amine (all optionally substituted), G, H, halo, OH, C(X)R20, C(X)NR16bR17b, SO2NR16bR17b or SO2R21b;

R16b, R17b = lower alkoxy or amine (both optionally substituted), G or H, or

R16b + R17b = carbocyclyl or heterocyclyl;

R21b = amine (optionally substituted) or G;

R1e = G, H, C(X)R20, C(X)NR16cR17c, SO2R21c or SO2NR16cR17c;

R2e = G, H, halo, C(X)R20, C(X)NR16cR17c, SO2R21c or SO2NR16cR17c;

R3e, R4e = alkoxy, thioalkoxy or amine (all optionally substituted), G, H, halo, OH, NR16cR17c, C(X)R20, C(X)NR16cR17c or SO2R21c, or when 1 of them is NR16cR17c, OH, alkoxy, thioalkoxy, aralkyl or heteroaralkyl and the other is H, then

R3e + R4e = =NR16c, =O, =S, =C-aryl or =C-heteroaryl;

R16c, R17c = H or G, or

R16c + R17c = carbocyclyl or heterocyclyl;

R21c = lower alkoxy or amine (both optionally substituted) or G;

R1f = G, H, C(X)R20a, C(X)NR16cR17c, SO2R21 or SO2NR16cR17c;

R2f-R7f = G, H, halo, C(X)R20a, C(X)NR16cR17c, SO2R21 or SO2NR16cR17c, and

R20a = lower alkoxy (optionally substituted) or OH,

with specified provisos.

Full Definitions are given in the Definitions Field (Full Definitions).

INDEPENDENT CLAIMS are also included for:

(1) a system for fitting compounds in binding sites of protein kinases comprising an electronic kinase scaffold, and a scaffold library comprising at least 1 collection of electronic representations of (I)-(VII), where the scaffold library is embedded in a computer device and the electronic representations of the compounds can be selectively retrieved and functionally connected with computer software adapted to fit electronic representations of compounds in an electronic representation of a binding site of a kinase;

(2) obtaining improved ligands binding to protein kinase which comprises determining if a derivative of (I)-(VII) binds to kinase with greater affinity and/or specificity than (I)-(VII);

(3) developing ligands specific for a particular kinase which comprises determining if a derivative of (I)-(VII) that binds to kinases has greater for specificity for the particular kinase than (I)-(VII);

(4) developing ligands binding to a kinase which comprises determining the orientation of at least 1 molecular scaffold of (I)-(VII) in co-crystals with the kinase, identifying chemical structures of the scaffolds, that, when modified,

change the binding affinity and/or specificity between the scaffold and kinase and synthesizing a ligand in which at least 1 chemical structure of the scaffold is modified;

(5) developing ligands with increased specificity on a kinase which comprises testing a derivative of a kinase binding compound (I)-(VII) for increased specificity on the kinase;

(6) identifying a ligand binding to a kinase which comprises determining if a derivative compound including a core structure (I)-(VII) binds to the kinase with changed binding affinity and/or specificity;

(7) a co-crystal of a kinase and a binding compound (I)-(VII);

(8) preparation of co-crystals of Pim-1 with (I)-(VII);

(9) identifying potential kinase binding compounds which comprises fitting electronic representations of (I)-(VII) in an electronic representation of a kinase binding site;

(10) attaching a kinase binding compound to an attachment component which comprises identifying energetically allowed sites for attachment of the component on a kinase binding compound (I)-(VII) and attaching the compound or derivative to the attachment component at the allowed site;

(11) modified compounds comprising (I)-(VIII) with an attached linker group, and

(12) developing a ligand for a kinase comprising conserved residues matching at least one of Pim-1 residues 49, 52, 67, 121, 128 and 186 which comprises determining if (I)-(VII) binds to the kinase.

USE - Used for identifying and developing ligands binding to kinases, for modulating kinase activity and for treating disease condition associated with abnormal kinase activity e.g. cancer, inflammatory disease (claimed).

ADVANTAGE - The method identifies improved ligands binding to a kinase resulting in ligands having high affinity and specificity towards kinase. The co-crystals of kinase and the binding compound are of sufficient size and quality to allow structural determination of at least 2 Angstroms.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Drawings
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☐ 4. Document ID: WO 2004090106 A2

L3: Entry 4 of 5

File: DWPI

Oct 21, 2004

DERWENT-ACC-NO: 2004-757977

DERWENT-WEEK: 200474

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TITLE: Crystal useful for developing Pim-1 (oncogene-encoded serine/threonine kinase) inhibitors, comprises human Pim-1 protein, Pim-1 homologue, human Pim-1 protein complex, or Pim-1 homologue complex

INVENTOR: HARE, B; JACOBS, M L ; SWENSON, L

PRIORITY-DATA: 2004US-552526P (March 12, 2004), 2003US-460843P (April 4, 2003)

## PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
WO 2004090106 A2	October 21, 2004	E	219	C12N000/00

INT-CL (IPC): C12 N 0/00

ABSTRACTED-PUB-NO: WO2004090106A

## BASIC-ABSTRACT:

NOVELTY - A crystal (I) comprises a human Pim-1 (oncogene-encoded serine/threonine kinase) protein, Pim-1 homologue, human Pim-1 protein complex, or Pim-1 homologue complex.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

(1) a crystallizable composition comprising a human Pim-1, a Pim-1 homologue, human Pim-1 protein complex, or Pim-1 homologue complex;

(2) a computer (II) comprising:

(a) a machine-readable data storage medium, comprising a data storage material encoded with machine-readable data, where the data defines a binding pocket or protein (P1) chosen from (i) a set of amino acid residues which are identical to human Pim-1 kinase amino acid residues Phe49, Ala65, Val126, and Leu174 according to atomic structure coordinates (AS1) in protein data bank (PDB)-like form for phosphorylated human Pim-1 in complex with adenosine, staurosporine or LY294002, where the root mean square deviation of the backbone atoms between the amino acid residues and the human Pim-1 kinase amino acid residues which are identical is not greater than about 2.0 Angstrom , (ii) a set of amino acid residues comprising at least 8 amino acid residues which are identical to human Pim-1 kinase amino acid residues Leu44, Gly45, Phe49, Val52, Ala65, Lys67, Ile104, Leu120, Arg122, Val126, and Leu174 according to AS1 of Pim-1-LY294002 complex, where the root square deviation of the backbone atoms between the at least 8 amino acid residues and the human Pim-1 kinase amino acid residues which are identical is not greater than about 2.0 Angstrom , (iii) a set of amino acid residues comprising at least 12 amino acid residues which are identical to human Pim-1 kinase amino acid residues Leu43, Leu44, Gly45, Ser46, Gly47, Phe49, Gly50, Ser51, Val52, Tyr53, Ser54, Val64, Ala65, Ile66, Lys67, Ile104, Arg105, Leu118, Ile119, Leu120, Glu121, Arg122, Pro123, Glu124, Val126, Gln127, Asp128, Asp131, Glu171, Asn172, Ile173, Leu174, Ile175, Lys183, Leu184, Ile185 and Asp186 according to AS1, where the root mean square deviation of the backbone atoms between the at least 12 amino acid residues and the human Pim-1 kinase amino acid residues is not greater than about 2.0 Angstrom , and (iv) a set of amino acid residues that are identical to human Pim-1 kinase amino acid residues according to AS1, where the root mean square deviation between the set of amino acid residues and the human Pim-1 kinase amino acid residues is not more than about 3.0 Angstrom ;

(b) a working memory for storing instructions for processing the machine-readable data;

(c) a central processing unit coupled to the working memory and to the machine-readable data storage medium for processing the machine-readable data and a unit for generating three-dimensional structural information of the binding pocket or protein; and

(d) output hardware coupled to the central processing unit for outputting three-dimensional structural information of the binding pocket or protein, or information produced using the three-dimensional structural information of the binding pocket or protein;

(3) a method (M1) of using a computer for selecting an orientation of a chemical entity that interacts favorably with (P1), involves providing the structure coordinates of (P1) on a computer comprising the unit for generating three-dimensional structural information from the structure coordinates, employing computational unit to dock a first chemical entity in (P1), quantifying the association between the chemical entity and all or part of (P1) for different orientations of the chemical entity;

(4) a method (M2) of using a computer for selecting an orientation of a chemical entity with a favorable shape complementarity in (P1), involves providing the structure coordinates of (P1) and all or part of the ligand bound to it on a computer comprising the unit for generating three-dimensional structural information from the structure coordinates, employing computational unit to dock a first chemical entity in the binding pocket, quantitating the contact score of the chemical entity in different orientations, and selecting an orientation with the highest contact score;

(5) identifying a candidate inhibitor of a molecule or molecular complex comprising (P1), involves using a three-dimensional structure of (P1) to design, select or optimize several of chemical entities, contacting each chemical entity with the molecule or the molecular complex, monitoring the inhibition to the catalytic activity of the molecule or molecular complex by each chemical entity, and selecting a chemical entity based on the inhibitory effect of the chemical entity on the catalytic activity of the molecule or molecular complex;

(6) designing a compound or complex that interacts with (P1), involves (a') providing the structure coordinates of (P1) on a computer comprising the unit for generating three-dimensional structural information from the structure coordinates, (b') using the computer to dock a first chemical entity in part of (P1), (c') docking at least a second chemical entity in another part of (P1), (d') quantifying the association between the first or second chemical entity and part of (P1), (e') repeating steps (b') to (d') with another first and second chemical entity, selecting a first and a second chemical entity based on the quantified association of all of the first and second chemical entity, (f') optionally, visually inspecting the relationship of the first and second chemical entity to each other in relation to (P1) on a computer screen using the three-dimensional graphical representation of (P1) and the first and second chemical entity, and (g') assembling the first and second chemical entity into a compound or complex that interacts with the binding pocket or protein by model building; and

(7) utilizing molecular replacement to obtain structural information about a molecule or a molecular complex of unknown structure, where the molecule is sufficiently homologous to Pim-1 protein, involves crystallizing the molecule or molecular complex, generating X-ray diffraction data from the crystallized molecule or molecular complex, applying at least portion of AS1 or their homology model to the X-ray diffraction data to generate a three-dimensional electron density map of at least a portion of the molecule or molecular complex whose structure is unknown, and generating a structural model of the molecule or molecular complex from the three-dimensional electron density map.

USE - (I) is useful for developing Pim-1 inhibitors that are useful as therapeutic agent in the treatment of cancer.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw. Dg
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☐ 5. Document ID: EP 1558751 A2, WO 2004024895 A2, US 20040142864 A1, AU



2003272548 A1

L3: Entry 5 of 5

File: DWPI

Aug 3, 2005

DERWENT-ACC-NO: 2004-329479

DERWENT-WEEK: 200551

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TITLE: Novel crystalline form of PIM-1, and a co-crystal of PIM-1 and a PIM-1 binding compound, useful for developing ligands that bind to and modulate PIM-1 and other PIM kinases

INVENTOR: BREMER, R; IBRAHIM, P ; KUMAR, A ; MANDIYAN, V ; MILBURN, M V

PRIORITY-DATA: 2002US-412341P (September 20, 2002), 2002US-411398P (September 16, 2002), 2003US-0664421 (September 16, 2003)

## PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
<u>EP 1558751 A2</u>	August 3, 2005	E	000	C12Q001/48
<u>WO 2004024895 A2</u>	March 25, 2004	E	217	C12N000/00
<u>US 20040142864 A1</u>	July 22, 2004		000	G01N033/53
<u>AU 2003272548 A1</u>	April 30, 2004		000	C12N000/00

INT-CL (IPC): A61 K 38/00; C12 N 0/00; C12 N 9/12; C12 Q 1/48; G01 N 33/53

ABSTRACTED-PUB-NO: WO2004024895A

## BASIC-ABSTRACT:

NOVELTY - A crystalline form (V) of PIM-1, and a co-crystal (VI) of PIM-1 and a PIM-1 binding compound, is new.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

(1) obtaining (M1) (V) or (VI) comprising subjecting PIM-1 protein at 5-20 mg/ml to crystallization condition substantially equivalent to Hampton Screen 1 conditions 2, 7, 14, 17, 23, 25, 29, 36, 44, or 49 for a time sufficient for crystal development, (in the presence of a binding compound for (VI));

(2) obtaining (M3) improved ligands binding to PIM-1, comprising determining if a derivative of a compound that binds to PIM-1 and interacts with one or more of PIM-1 residues (R) 49, 52, 65, 67, 121, 128, and 186 binds to PIM-1 with greater affinity and/or greater specificity;

(3) developing (M4) ligands specific for PIM-1 comprising determining if a derivative of a compound that binds to several kinases has greater specificity for PIM-1 than the compound;

(4) developing (M5) ligands binding to PIM-1, or ligands with increased PIM specificity, comprising testing a derivative of a kinase binding compound for increased PIM specificity;

(5) identifying (M7) a ligand binding to PIM-1, comprising determining if a derivative compound that includes a core structure chosen from Formula (I), (II), and (III) binds to PIM-1 with altered binding affinity or specificity or both as compared to the parent compound;

- (6) determining (M8) a structure of a kinase by creating a homology model from an electronic representation of a PIM-1 structure;
- (7) modulating (M9) PIM-1 activity, by contacting PIM-1 with a compound that binds to PIM-1 and interacts with one or more (R);
- (8) treating (M10) a patient suffering from a disease or condition characterized by abnormal PIM-1 activity, involves administering to the patient a compound that interacts with one or more of PIM-1 residues 49, 52, 65, 67, 121, 128, and 186;
- (9) an electronic representation of a crystal structure of PIM-1, a binding site of PIM-1, a PIM-1 based homology model for a kinase, or a modified PIM-1 crystal structure;
- (10) developing (M11) a biological agent, by analyzing a PIM-1 structure and identifying at least one sub-structure for forming the biological agent;
- (11) attaching (M12) a kinase binding compound to an attachment component comprising;
- (12) modified compound (IV) comprising (I), (II), (III), with a linker moiety attached to it;
- (13) modified PIM-1 polypeptide, comprising a Pro123Met modification;
- (14) developing (M13) a ligand for a kinase comprising conserved residues matching PIM-1 residues 49, 52, 65, 67, 121, 128, and 186 by determining if (I), (II) or (III) binds to the kinase; and
- (15) treating (M14) a PIM-1 associated disease, by administering a 2-phenylaminopyrimidine compound or a pyrido-(2,3-d)pyrimidine compound.

R1 = H, or optionally substituted lower alkyl, alkenyl, or alkynyl, cycloalkyl, heterocycloalkyl, aryl, aralkyl, heteroaryl or heteroaralkyl; -C(X)R20, -C(X)NR16R17, or -S(O2)R21;

R2 = R1 or, trifluoromethyl;

R3 and R4 = R1, OH, F, Cl, trifluoromethyl, optionally substituted alkoxy, thioalkoxy or amine;

R5 and R6 = H, OH, F, Cl, or optionally substituted lower alkoxy, lower thioalkoxy or amine, lower alkyl, trifluoromethyl, -NR16C(X)NR16R17, -C(X)R20, or -S(O2)R21;

R16 and R17 = R1;

R20 = OH, optionally substituted lower alkoxy or amine, or R1;

R21 = optionally substituted lower alkoxy or amine, or R1; and

X = O or S.

R1 = H, OH, F, Cl, trifluoromethyl, optionally substituted alkoxy or amine, optionally substituted lower alkyl, alkenyl, or alkynyl, cycloalkyl, heterocycloalkyl, aryl, aralkyl, heteroaryl or heteroaralkyl, or -NR16C(X)NR16R17, -C(X)R20, or -S(O2)R21;

R2 = R1 or optionally substituted thioalkyl;

R3 and R4 = HO, H, F, Cl, trifluoromethyl, optionally substituted alkoxy or amine,

optionally substituted lower alkyl, alkenyl, or alkynyl, cycloalkyl, heterocycloalkyl, aryl, aralkyl, heteroaryl or heteroaralkyl, or -NR<sub>16</sub>C(X)NR<sub>16</sub>R<sub>17</sub>, -C(X)R<sub>20</sub>, or -S(O<sub>2</sub>)R<sub>21</sub>;

R<sub>5</sub> = H, F, Cl, trifluoromethyl, optionally substituted lower alkoxy, amine or lower alkyl, or -NR<sub>16</sub>C(X)NR<sub>16</sub>R<sub>17</sub>; and

R<sub>16</sub>, R<sub>17</sub>, R<sub>20</sub>, R<sub>21</sub>, and X = as in (I).

X<sub>1</sub> = O, S, NR<sub>18</sub>, or CR<sub>18</sub>R<sub>19</sub>;

R<sub>1</sub> = H, OH, halogen, optionally substituted alkoxy, thioalkoxy, amine, aryl, aralkyl, heteroaryl or heteroaralkyl, or -NR<sub>16</sub>C(X)NR<sub>16</sub>R<sub>17</sub>, -C(X)R<sub>20</sub>, or -S(O<sub>2</sub>)R<sub>21</sub>;

R<sub>2</sub> = H, optionally substituted lower alkyl, alkenyl, or alkynyl, cycloalkyl, heterocycloalkyl, aryl, aralkyl, heteroaryl or heteroaralkyl, or -C(X)R<sub>20</sub>, or -S(O<sub>2</sub>)R<sub>21</sub>;

R<sub>3</sub> = H, OH, F, Cl, optionally substituted alkoxy or amine, or -NR<sub>16</sub>C(X)NR<sub>16</sub>R<sub>17</sub>, -C(X)R<sub>20</sub>, or -S(O<sub>2</sub>)R<sub>21</sub>;

R<sub>4</sub> = H, OH, Cl, trifluoromethyl, lower alkoxy, amine, or lower alkyl;

R<sub>5</sub> and R<sub>6</sub> = H, OH, F, Cl, trifluoromethyl, optionally substituted alkoxy, thioalkoxy or amine, optionally substituted lower alkyl, alkenyl, or alkynyl, cycloalkyl, heterocycloalkyl, aryl, aralkyl, heteroaryl or heteroaralkyl; -C(X)R<sub>20</sub>, or -S(O<sub>2</sub>)R<sub>21</sub>;

R<sub>16</sub> and R<sub>17</sub> = H, or optionally substituted lower alkyl, alkenyl, or alkynyl, cycloalkyl, heterocycloalkyl, aryl, aralkyl, heteroaryl or heteroaralkyl;

R<sub>18</sub> and R<sub>19</sub> = H, optionally substituted alkyl, lower alkenyl, lower alkynyl, cycloalkyl, heterocycloalkyl, aryl, aralkyl, heteroaryl or heteroaralkyl, C(X)NR<sub>16</sub>R<sub>17</sub>, -C(X)R<sub>20</sub>, or -S(O<sub>2</sub>)R<sub>21</sub>;

R<sub>20</sub> = OH, optionally substituted lower alkoxy or amine, or optionally substituted lower alkyl, alkenyl, or alkynyl, cycloalkyl, heterocycloalkyl, aryl, aralkyl, heteroaryl or heteroaralkyl;;

R<sub>21</sub> = optionally substituted lower alkoxy or amine, or optionally substituted lower alkyl, alkenyl, or alkynyl, cycloalkyl, heterocycloalkyl, aryl, aralkyl, heteroaryl or heteroaralkyl; and

X = as in (I).

ACTIVITY - Cytostatic; Antiinflammatory; Vasotropic; Antiasthmatic; Antiallergic; Antirheumatic; Antiarthritic; Antipsoriatic; Neuroprotective; Tuberculostatic.

MECHANISM OF ACTION - PIM-1 activity modulator.

No biological data is given.

USE - (M<sub>9</sub>) is useful for modulating PIM-1 activity. (M<sub>10</sub>) is useful for treating a patient suffering from disease or condition characterized by abnormal PIM-1 activity such as cancer, or inflammatory disease or condition. (M<sub>14</sub>) is useful for treating PIM-1 associated disease. (All claimed.) (M<sub>9</sub>) is useful in inhibiting development of hematous plaque and restenosis, in controlling restenosis, as anti-metastatic agents, in treating diabetic complications, as immunosuppressants, and in control of angiogenesis. (M<sub>10</sub>) and (M<sub>14</sub>) are useful for treating diseases such as prostate cancer, leukemia, Kaposi sarcoma, asthma and allergy, inflammatory

disorders such as rheumatoid arthritis, psoriasis, multiple sclerosis, surgical adhesions, tuberculosis, and chronic inflammatory lung and airway diseases.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw. D.
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Clear	Generate Collection	Print	Fwd Refs	Bkwd Refs	Generate OACS
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Terms	Documents
(PIM or PIM-1 or PIM-2 or PIM-3) same (crystal or x-ray) and kinase	5

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## WEST Search History

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DATE: Monday, May 22, 2006

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		<i>DB=PGPB; THES=ASSIGNEE; PLUR=YES; OP=ADJ</i>	
<input type="checkbox"/>	L6	pim1 same(inhibitor or specificity or modulator)	45
<input type="checkbox"/>	L5	pim1 and (inhibitor or specificity or modulator)	128
		<i>DB=USPT,USOC,EPAB,JPAB,DWPI; THES=ASSIGNEE; PLUR=YES; OP=ADJ</i>	
<input type="checkbox"/>	L4	pim1 and (inhibitor or specificity or modulator)	24
<input type="checkbox"/>	L3	pim kinase and (inhibitor or specificity or modulator)	2
<input type="checkbox"/>	L2	pim kinase and (inhibitor or specificity)	1
<input type="checkbox"/>	L1	pim1 and (inhibitor or specificity)	22

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**Search Results - Record(s) 1 through 24 of 24 returned.**

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☐ 1. Document ID: US 7029675 B1**Using default format because multiple data bases are involved.**

L4: Entry 1 of 24

File: USPT

Apr 18, 2006

US-PAT-NO: 7029675

DOCUMENT-IDENTIFIER: US 7029675 B1

TITLE: Hepsin antagonist and methods of use

DATE-ISSUED: April 18, 2006

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Lin; Shu-Wha	Taipei		241	TW
Yu; I-Shing	Taipei		234	TW
Lin; Teng-Nan	Taipei 11529		11529	TW
Chu; Pao-Hsien	San Diego	CA	92130	US
Tu; Hosheng	Newport Beach	CA	92657	US

US-CL-CURRENT: 424/133.1; 424/146.1, 435/6

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. Data
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☐ 2. Document ID: US 6902887 B1

L4: Entry 2 of 24

File: USPT

Jun 7, 2005

US-PAT-NO: 6902887

DOCUMENT-IDENTIFIER: US 6902887 B1

TITLE: Methods for monitoring multiple gene expression

DATE-ISSUED: June 7, 2005

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Berka; Randy M.	Davis	CA		
Rey; Michael W.	Davis	CA		
Shuster; Jeffrey R.	Davis	CA		
Kauppinen; Sakari	Smoerum			DK

Clausen; Ib Groth  
Olsen; Peter Bjarke

Hillerod  
Copenhagen

DK  
DK

US-CL-CURRENT: 435/6; 536/23.7

ABSTRACT:

The present invention relates to methods for monitoring differential expression of a plurality of genes in a first filamentous fungal cell relative to expression of the same genes in one or more second filamentous fungal cells using microarrays containing filamentous fungal expressed sequenced tags. The present invention also relates to filamentous fungal expressed sequenced tags and to computer readable media and substrates containing such expressed sequenced tags for monitoring expression of a plurality of genes in filamentous fungal cells.

8 Claims, 0 Drawing figures  
Exemplary Claim Number: 1

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KVMC	Draw. De
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☐ 3. Document ID: US 6794137 B2

L4: Entry 3 of 24

File: USPT

Sep 21, 2004

US-PAT-NO: 6794137

DOCUMENT-IDENTIFIER: US 6794137 B2

**\*\* See image for Certificate of Correction \*\***

TITLE: Gene markers useful for detecting skin damage in response to ultraviolet radiation

DATE-ISSUED: September 21, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Blumenberg; Miroslav	New York	NY		

US-CL-CURRENT: 435/6; 536/23.1, 536/24.3

ABSTRACT:

The cellular response to ultraviolet radiation exposure has been characterized on the molecular level through the use of high density gene array technology. Nucleic acid molecules and protein molecules, the expression of which are repressed or induced in response to ultraviolet radiation exposure, are identified according to a temporal pattern of altered expression post ultraviolet radiation exposure. Methods are disclosed that utilized these ultraviolet radiation-regulated molecules as markers for ultraviolet radiation exposure. Other screening methods of the invention are designed for the identification of compounds that modulate the response of a cell to ultraviolet radiation exposure. The invention also provides compositions useful for drug screening or pharmaceutical purposes.

92 Claims, 6 Drawing figures

Exemplary Claim Number: 1  
Number of Drawing Sheets: 6

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw. D.
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☐ 4. Document ID: US 6774279 B2

L4: Entry 4 of 24

File: USPT

Aug 10, 2004

US-PAT-NO: 6774279  
DOCUMENT-IDENTIFIER: US 6774279 B2

TITLE: Use of FLP recombinase in mice

DATE-ISSUED: August 10, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Dymecki; Susan M.	Baltimore	MD		

US-CL-CURRENT: 800/3; 800/13, 800/14, 800/18

ABSTRACT:

A method is disclosed for producing site-specific recombination of DNA in a transgenic non-human mammal at chromosomal regions containing Flp-recognition sites (e.g., a DNA sequence containing an FRT site). The invention in particular discloses the use of site-specific recombinases such as Flp recombinase to accomplish in vivo recombination at engineered chromosomal FRT sites, thereby forming the basis of a genetic system to mark cell populations and lineages, as well as to activate, delete, mutate, or rearrange genes in vivo. DNA constructs are provided for the creation of Flp and FRT transfected eukaryotic cells or transgenic non-human mammals.

11 Claims, 3 Drawing figures  
Exemplary Claim Number: 7  
Number of Drawing Sheets: 3

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw. D.
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☐ 5. Document ID: US 6747137 B1

L4: Entry 5 of 24

File: USPT

Jun 8, 2004

US-PAT-NO: 6747137  
DOCUMENT-IDENTIFIER: US 6747137 B1

TITLE: Nucleic acid sequences relating to Candida albicans for diagnostics and therapeutics

DATE-ISSUED: June 8, 2004



## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Weinstock; Keith G.	Westborough	MA		
Bush; David	Somerville	MA		

US-CL-CURRENT: 536/23.1; 435/6, 536/24.3, 536/24.31, 536/24.32, 536/24.33

## ABSTRACT:

The invention provides isolated polypeptide and nucleic acid sequences derived from *Candida albicans* that are useful in diagnosis and therapy of pathological conditions; antibodies against the polypeptides; and methods for the production of the polypeptides. The invention also provides methods for the detection, prevention and treatment of pathological conditions resulting from fungal infection.

12 Claims, 0 Drawing figures  
Exemplary Claim Number: 1

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	RMIC	Draw. D.
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☐ 6. Document ID: US 6723837 B1

L4: Entry 6 of 24

File: USPT

Apr 20, 2004

US-PAT-NO: 6723837

DOCUMENT-IDENTIFIER: US 6723837 B1

TITLE: Nucleic acid molecule and encoded protein associated with sterol synthesis and metabolism

DATE-ISSUED: April 20, 2004

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Karunanandaa; Balasulojini	Creve Coeur	MO		
Yu; Jaehyuk	Madison	WI		
Kishore; Ganesh	Creve Coeur	MO		

US-CL-CURRENT: 536/23.1; 536/23.6

## ABSTRACT:

This invention relates to the field of biotechnology, particularly as it pertains to a nucleic acid molecule encoding a protein associated with sterol and phytosterol synthesis and metabolism. The invention also relates to methods of detection using the nucleic acid molecule, or the encoded protein as a probe or in a microarray.

2 Claims, 0 Drawing figures  
Exemplary Claim Number: 1

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	RIMC	Draw. De
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☐ 7. Document ID: US 6506559 B1

L4: Entry 7 of 24

File: USPT

Jan 14, 2003

US-PAT-NO: 6506559

DOCUMENT-IDENTIFIER: US 6506559 B1

**\*\* See image for Certificate of Correction \*\***

TITLE: Genetic inhibition by double-stranded RNA

DATE-ISSUED: January 14, 2003

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Fire; Andrew	Baltimore	MD		
Kostas; Stephen	Chicago	IL		
Montgomery; Mary	St. Paul	MN		
Timmons; Lisa	Lawrence	KS		
Xu; SiQun	Ballwin	MO		
Tabara; Hiroaki	Shizuoka			JP
Driver; Samuel E.	Providence	RI		
Mello; Craig C.	Shrewsbury	MA		

US-CL-CURRENT: 435/6; 435/325, 435/91.1

## ABSTRACT:

A process is provided of introducing an RNA into a living cell to inhibit gene expression of a target gene in that cell. The process may be practiced ex vivo or in vivo. The RNA has a region with double-stranded structure. Inhibition is sequence-specific in that the nucleotide sequences of the duplex region of the RNA and of a portion of the target gene are identical. The present invention is distinguished from prior art interference in gene expression by antisense or triple-strand methods.

22 Claims, 19 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 5

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	RIMC	Draw. De
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☐ 8. Document ID: US 6395029 B1

L4: Entry 8 of 24

File: USPT

May 28, 2002

US-PAT-NO: 6395029

DOCUMENT-IDENTIFIER: US 6395029 B1

TITLE: Sustained delivery of polyionic bioactive agents

DATE-ISSUED: May 28, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Levy; Robert J.	Merion Station	PA		

US-CL-CURRENT: 623/11.11; 424/450, 424/484, 424/490, 427/2.24, 427/2.31, 623/1.42, 623/23.59

ABSTRACT:

The invention relates to compositions and methods for delivering a polyionic bioactive composition such as a nucleic acid to a tissue of an animal. The compositions of the invention include compositions which comprise a matrix comprising the polyionic bioactive agent and wherein at least most of the polyionic bioactive agent at the exterior portion of the matrix is present in a condensed form. The invention also includes methods of making such compositions, including particles, devices, bulk materials, and other objects which comprise, consist of, or are coated with such compositions. Methods of delivering a polyionic bioactive agent to an animal tissue are also described. The invention further includes a method of storing a nucleic acid.

44 Claims, 2 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 2

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	RWMC	Draw D
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☐ 9. Document ID: US 6333194 B1

L4: Entry 9 of 24

File: USPT

Dec 25, 2001

US-PAT-NO: 6333194

DOCUMENT-IDENTIFIER: US 6333194 B1

TITLE: Hydrogel compositions for controlled delivery of virus vectors and methods of use thereof

DATE-ISSUED: December 25, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Levy; Robert J.	Merion Station	PA		
Crombleholme; Timothy	Haverford	PA		
Vyavahare; Narendra	Erial	NJ		

US-CL-CURRENT: 435/450; 424/1.25, 424/1.33, 424/1.53, 424/497, 435/6, 536/23.1, 536/3, 977/800

ABSTRACT:

The invention relates to compositions and methods for delivering a virus vector to an animal. The compositions include compositions which comprise a hydrogel matrix (e.g. a collagen matrix which can comprise a poloxamer or an alginate) containing a virus vector therein in a transfectious form. The invention also includes methods of making such hydrogel precursor mixtures and hydrogel matrices, including particles, devices, bulk materials, and other objects which comprise, consist of, or are coated with such mixtures or matrices. The invention further relates to compositions comprising a hydrogel precursor mixture having a virus vector suspended therein, which, when administered to an animal, gel to form a hydrogel matrix containing a virus vector therein in a transfectious form. Methods of delivering a virus vector to an animal tissue are also described.

34 Claims, 9 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 3

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw. D
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☐ 10. Document ID: US 6333153 B1

L4: Entry 10 of 24

File: USPT

Dec 25, 2001

US-PAT-NO: 6333153

DOCUMENT-IDENTIFIER: US 6333153 B1

**\*\* See image for Certificate of Correction \*\***

TITLE: Compositions, kits, and methods for effecting adenine nucleotide modulation of DNA mismatch recognition proteins

DATE-ISSUED: December 25, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Fishel; Richard A.	Penn Valley	PA		
Gradia; Scott	Philadelphia	PA		
Acharya; Samir	Philadelphia	PA		

US-CL-CURRENT: 435/6; 435/7.1, 435/91.2, 530/350, 536/23.1

ABSTRACT:

Compositions, and products comprising a MutS homolog which binds to a mismatched region of a duplex DNA molecule in the presence of ADP are provided, as are methods of binding MutS homologs to mismatched DNA in the presence of ADP. The use of MutL homolog derivatives in combination with MutS homologs is also included. Nonhuman mammals which are nullizygous for both Msh2 and p53 are also provided, as are methods of making and using the same.

88 Claims, 49 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 25

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw D
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☐ 11. Document ID: US 6319679 B1

L4: Entry 11 of 24

File: USPT

Nov 20, 2001

US-PAT-NO: 6319679

DOCUMENT-IDENTIFIER: US 6319679 B1

TITLE: PAS kinase

DATE-ISSUED: November 20, 2001

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
McKnight; Steven L.	Dallas	TX		
Gardner; Kevin	Dallas	TX		
Harper; Shannon	Dallas	TX		
Rutter; Jared	Dallas	TX		
Michnoff; Carolyn	Dallas	TX		
Amezcuca; Carlos	Dallas	TX		

US-CL-CURRENT: 435/15; 435/194, 530/300, 530/350, 536/23.2, 536/23.5

## ABSTRACT:

The invention provides methods and compositions relating to a novel kinase designated PAS Kinase (PASK). The compositions include isolated polypeptides comprising a native PASK protein or a PASK N-terminal domain and polypeptides consisting of a PASK PAS-A or PAS-B domain, as well as isolated polynucleotides encoding such polypeptides, and expression vectors and cells comprising such polynucleotides. The methods include binding assays comprising the steps of incubating a mixture comprising a subject polypeptide with a ligand under conditions wherein the polypeptide binds the ligand; and detecting binding of the polypeptide to the ligand.

13 Claims, 3 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 3

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw D
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☐ 12. Document ID: US 6303295 B1

L4: Entry 12 of 24

File: USPT

Oct 16, 2001

US-PAT-NO: 6303295

DOCUMENT-IDENTIFIER: US 6303295 B1

**\*\* See image for Certificate of Correction \*\***

TITLE: Selenoproteins, coding sequences and methods

DATE-ISSUED: October 16, 2001

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Taylor; Ethan Will	Athens	GA		
Nadimpalli; Ram Gopal	Athens	GA		
Ramanathan; Chandra Sekar	Athens	GA		

US-CL-CURRENT: 435/6; 530/350, 530/400, 536/23.1, 536/23.74

## ABSTRACT:

The present disclosure provides a method for the identification of nucleotide sequences which encode selenoproteins. Nucleotide sequences are translated in all potential reading frames, those with a relatively large number of UGA or TGA codons are noted, and frameshift-dependent open reading frames and SECIS elements are identified as associated with selenoprotein coding sequences, especially those within or overlapping known open reading frames. Further provided are selenoprotein coding sequences which are associated with certain viruses (e.g., HIV and Ebola), cancer-related genes and coding sequences related to normal functioning of the immune system.

16 Claims, 65 Drawing figures  
Exemplary Claim Number: 1  
Number of Drawing Sheets: 28

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	RMK	Draw D.
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☐ 13. Document ID: US 6251585 B1

L4: Entry 13 of 24

File: USPT

Jun 26, 2001

US-PAT-NO: 6251585

DOCUMENT-IDENTIFIER: US 6251585 B1

TITLE: Assay and reagents for identifying anti-proliferative agents

DATE-ISSUED: June 26, 2001

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Draetta; Giulio	Winchester	MA		
Cottarel; Guillaume	Chestnut Hill	MA		
Damagnez; Veronique	Cambridge	MA		

US-CL-CURRENT: 435/6; 435/21, 435/254.11, 435/254.2, 435/29, 435/32, 435/7.31

## ABSTRACT:

The present invention makes available assays and reagents for identifying anti-proliferative agents, such as mitotic and meiotic inhibitors. The present assay provides a simple and rapid screening test which relies on scoring for positive

cellular proliferation as indicative of anti-mitotic or anti-meiotic activity, and comprises contacting a candidate agent with a cell which has an impaired cell-cycle checkpoint and measuring the level of proliferation in the presence and absence of the agent. The checkpoint impairment is such that it either causes premature progression of the cell through at least a portion of a cell-cycle or inhibition of normal progression of the cell through at least a portion of a cell-cycle, but can be off-set by the action of an agent which inhibits at least one regulatory protein of the cell-cycle in a manner which counter-balances the effect of the impairment.

25 Claims, 12 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 8

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KNOW	Drawing
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☐ 14. Document ID: US 6239264 B1

L4: Entry 14 of 24

File: USPT

May 29, 2001

US-PAT-NO: 6239264

DOCUMENT-IDENTIFIER: US 6239264 B1

TITLE: Genomic DNA sequences of ashbya gossypii and uses thereof

DATE-ISSUED: May 29, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Philippsen; Peter	Riehen			CH
Pohlmann; Rainer	Lorrach			DE
Steiner-Lange; Sabine	Bonn			DE
Mohr; Christine	Allschwil			CH
Wendland; Jurgen	Lorrach			DE
Knechtle; Philipp	Oberwil			CH
Rebischung; Corinne	Saint-Louis			FR

US-CL-CURRENT: 536/23.1; 435/320.1, 536/24.3, 536/24.32

ABSTRACT:

The present invention relates to the terminal sequencing of random genomic fragments performed with the filamentous fungus *A.gossypii*, to the sequences obtained therewith and the use of the sequences for forensic identification, to characterize genes and gene organization of this ascomycete by inter-genomic comparison, to identify biosynthetic genes that can be used as selection markers, to isolate promoters and terminators for application in a homologous as well as heterologous context, to find putative centromere containing clones, chromosome mapping, chromosome identifying, general information about chromosome organization and in addition to identify ORF containing SRS sequences with no homology to *S. cerevisiae* or any other organism which allows the identification of *A. gossypii* specific genes.

2 Claims, 0 Drawing figures

Exemplary Claim Number: 1

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw D
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☐ 15. Document ID: US 6136581 A

L4: Entry 15 of 24

File: USPT

Oct 24, 2000

US-PAT-NO: 6136581

DOCUMENT-IDENTIFIER: US 6136581 A

**\*\* See image for Certificate of Correction \*\***

TITLE: Kinase genes and uses

DATE-ISSUED: October 24, 2000

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Joho; Keith E.	San Jose	CA		
Plowman; Gregory D.	San Carlos	CA		

US-CL-CURRENT: 435/194; 435/252.3, 435/320.1, 435/325, 435/6, 536/23.1, 536/23.2

## ABSTRACT:

The specification describes isolated, purified, or enriched nucleic acid molecules which correspond to particular genes encoding kinases, and to fragments of such genes, as well as the polypeptides encoded by such nucleic acids and antibodies specific for those polypeptides. Also disclosed are methods using such nucleic acid molecules, polypeptides, or antibodies for isolating the full coding sequences for those kinases, for determining the expression patterns and levels for those genes, for screening for agents which modulate the activity of one of the kinases, and for diagnosing or treating a disease associated with one of the kinases.

19 Claims, 19 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 20

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw D
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☐ 16. Document ID: US 5972629 A

L4: Entry 16 of 24

File: USPT

Oct 26, 1999

US-PAT-NO: 5972629

DOCUMENT-IDENTIFIER: US 5972629 A

**\*\* See image for Certificate of Correction \*\***

TITLE: Method for characterizing antigenic reactivity of biological sample



DATE-ISSUED: October 26, 1999

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Niman; Henry L.	Carlsbad	CA		

US-CL-CURRENT: 435/7.23; 435/7.1, 435/7.92, 436/514, 436/516, 436/813, 530/350,  
530/403, 530/413, 530/826

## ABSTRACT:

This invention features methods for characterizing antigenic reactivity of biological samples by contacting a biological sample with two or a plurality of monoclonal receptor molecules raised to an immunogen containing a polypeptide of about 7 to about 40 amino acid residues and comparing the ensuing reaction pattern with a pattern generated with a known biological sample.

83 Claims, 55 Drawing figures  
Exemplary Claim Number: 1  
Number of Drawing Sheets: 45

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw. D
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☐ 17. Document ID: US 5846531 A

L4: Entry 17 of 24

File: USPT

Dec 8, 1998

US-PAT-NO: 5846531

DOCUMENT-IDENTIFIER: US 5846531 A

TITLE: Marine mela gene

DATE-ISSUED: December 8, 1998

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Weiner; Ronald M.	Adelphi	MD		
Fuqua, Jr.; William Claiborne	San Antonio	TX		

US-CL-CURRENT: 424/94.4; 435/189

## ABSTRACT:

The present invention provides the isolated genes encoding marine mela from the genus *Shewanella*, especially from the species *S. colwelliana*, and the Mela encoded thereby in homogeneous form. Further, the invention provides antibodies to marine Mela as well as methods of using the Mela to induce oyster larval settlement. Moreover, these marine mela genes are also useful as selectable markers for genetic engineering.

7 Claims, 35 Drawing figures  
Exemplary Claim Number: 1

Number of Drawing Sheets: 23

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw. De
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☐ 18. Document ID: US 5474933 A

L4: Entry 18 of 24

File: USPT

Dec 12, 1995

US-PAT-NO: 5474933

DOCUMENT-IDENTIFIER: US 5474933 A

TITLE: Marine mela gene

DATE-ISSUED: December 12, 1995

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Weiner; Ronald M.	Adelphi	MD		
Fuqua, Jr.; William C.	Norfolk	VA		

US-CL-CURRENT: 435/252.3; 435/212, 435/252.35, 435/320.1, 435/69.1, 536/22.1,  
536/23.1, 536/23.2, 536/23.7

## ABSTRACT:

The present invention provides the isolated genes encoding marine mela from the genus *Shewanella*, especially from the species *S. colwelliana*, and the mela encoded thereby in homogeneous form. Further, the invention provides antibodies to marine mela as well as methods of using the mela to induce oyster larval settlement. Moreover, these marine mela genes are also useful as selectable markers for genetic engineering.

10 Claims, 34 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 24

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw. De
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☐ 19. Document ID: US 5443962 A

L4: Entry 19 of 24

File: USPT

Aug 22, 1995

US-PAT-NO: 5443962

DOCUMENT-IDENTIFIER: US 5443962 A

TITLE: Methods of identifying inhibitors of cdc25 phosphatase

DATE-ISSUED: August 22, 1995

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Draetta; Giulio	Winchester	MA		
Cottarel; Guillaume	Chestnut Hill	MA		
Damagnez; Veronique	Cambridge	MA		

US-CL-CURRENT: 435/29; 435/21, 435/254.2, 435/7.31

## ABSTRACT:

The present invention makes available assays and reagents for identifying anti-proliferative agents, such as mitotic and meiotic inhibitors, especially inhibitors of cdc25 phosphatase. The present assay provides a simple and rapid screening test which relies on scoring for positive cellular proliferation as indicative of anti-mitotic or anti-meiotic activity, and comprises contacting a candidate agent with a cell which has an impaired cell-cycle checkpoint and measuring the level of proliferation in the presence and absence of the agent. The checkpoint impairment is such that it either causes premature progression of the cell through at least a portion of a cell-cycle or inhibition of normal progression of the cell through at least a portion of a cell-cycle, but can be off-set by the action of an agent which inhibits at least one regulatory protein of the cell-cycle in a manner which counter-balances the effect of the impairment.

42 Claims, 12 Drawing figures  
Exemplary Claim Number: 1  
Number of Drawing Sheets: 8

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw D
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☐ 20. Document ID: US 5407915 A

L4: Entry 20 of 24

File: USPT

Apr 18, 1995

US-PAT-NO: 5407915

DOCUMENT-IDENTIFIER: US 5407915 A

**\*\* See image for Certificate of Correction \*\***TITLE: Human Bikunin variants as proteinase inhibitors, and medicaments containing these

DATE-ISSUED: April 18, 1995

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Fritz; Hans	Hohenbrunn			DE
Gebhard; Wolfgang	Unterumbach			DE
Das; Rathindra	Wuppertal			DE

US-CL-CURRENT: 514/12; 435/69.2, 530/350

## ABSTRACT:

A proteinase inhibitor which has the sequence of amino acids 21 to 147 of human

bikunin, in which at least one amino acid residue has been replaced by another naturally occurring amino acid. Such proteinase inhibitor is useful in pharmaceutical compositions.

16 Claims, 17 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 13

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	MMMC	Draw. D.
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☐ 21. Document ID: US 5262409 A

L4: Entry 21 of 24

File: USPT

Nov 16, 1993

US-PAT-NO: 5262409

DOCUMENT-IDENTIFIER: US 5262409 A

**\*\* See image for Certificate of Correction \*\***

TITLE: Binary tumor therapy

DATE-ISSUED: November 16, 1993

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Margolis; Robert L.	Seattle	WA		
Andreasson; Paul R.	Seattle	WA		

US-CL-CURRENT: 514/183; 435/4, 514/263.4, 514/283, 514/411, 514/443, 514/444,  
514/449, 514/463, 514/468

ABSTRACT:

Method for killing a cycling cell, by contacting the cell with a first agent that blocks progression of the cell cycle in the cell, and thereafter contacting the cell with a second agent that overrides the cell cycle block such that the cell proceeds past mitosis and cell death results within an additional cell cycle due to aberrant DNA replication or chromosome segregation. The first agent blocks the progression of the G.sub.1, S, G.sub.2, or mitosis stage of the cell cycle. The second agent is preferably 2-aminopurine (2-AP) or 6-dimethylaminopurine (6-DMAP). The duration of contact with the first agent is advantageously limited to a first time period sufficient to block the progression of the cell cycle, and the duration of contact with the second agent is limited to a second time period sufficient to override the cell cycle block. Also, a method of screening for a binary tumor therapy agent, by contacting a cycling mammalian cell with a first agent that blocks progression of the cell cycle, preferably mitosis, in the cell; thereafter contacting the cell with a candidate second agent; and determining that the candidate second agent is a binary tumor therapy agent if the candidate second agent overrides the cell cycle block such that the cell proceeds past mitosis and cell death results within an additional cell cycle due to aberrant DNA replication or chromosome segregation.

3 Claims, 70 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 16

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw. D
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☐ 22. Document ID: WO 2004007754 A2

L4: Entry 22 of 24

File: EPAB

Jan 22, 2004

PUB-NO: WO2004007754A2

DOCUMENT-IDENTIFIER: WO 2004007754 A2

TITLE: MODULATORS OF CELLULAR PROLIFERATION

PUBN-DATE: January 22, 2004

## INVENTOR-INFORMATION:

NAME

COUNTRY

HITOSHI, YASUMICHI

US

JENKINS, YONCHU

US

MARKOVTSOV, VADIM

US

INT-CL (IPC): C12 Q 0/

EUR-CL (EPC): G01N033/50

## ABSTRACT:

CHG DATE=20040203 STATUS=O>The present invention relates to regulation of cellular proliferation. More particularly, the present invention is directed to nucleic acids encoding protein kinase C zeta (PKC-zeta), phospholipase C-beta1 (PLC-β1), protein tyrosine kinase 2 (FAK), protein tyrosine kinase 2b (FAK2), casein kinase 2 (CK2), cMET tyrosine kinase (cMET), flap structure specific endonuclease 1 (FEN1), REV1 dCMP transferase (REV1), apurinic/apyrimidinic nuclease 1 (APE1), cyclin dependent kinase 3 (CDK3), PIM1 kinase (PIM1), cell division cycle 7 kinase (CDC7L1), cyclin dependent kinase 7 (CDK7), cytokine inducible kinase (CNK), potentially prenylated protein tyrosine phosphatase (PRL-3), serine threonine kinase 2 (STK2) or (NEK4), cyclin dependent serine threonine kinase (NKIAMRE), or histone acetylase (HBO1), which are involved in modulation of cell cycle arrest. The invention further relates to methods for identifying and using agents, including small molecule chemical compositions, antibodies, peptides, cyclic peptides, nucleic acids, RNAi, antisense nucleic acids, and ribozymes, that modulate cell cycle arrest via modulation of protein kinase C zeta (PKC-zeta), phospholipase C-β1 (PLC-β1), protein tyrosine kinase 2 (FAK), protein tyrosine kinase 2b (FAK2), casein kinase 2 (CK2), cMET tyrosine kinase (cMET), flap structure specific endonuclease 1 (FEN1), REV1 dCMP transferase (REV1), apurinic/apyrimidinic nuclease 1 (APE1), cyclin dependent kinase 3 (CDK3), PIM1 kinase (PIM1), cell division cycle 7 kinase (CDC7L1), cyclin dependent kinase 7 (CDK7), cytokine inducible kinase (CNK), potentially prenylated protein tyrosine phosphatase (PRL-3), serine threonine kinase 2 (STK2) or (NEK4), cyclin dependent serine threonine kinase (NKIAMRE), or histone acetylase (HBO1), as well as to the use of expression profiles and compositions in diagnosis and therapy related to cell cycle regulation and modulation of cellular proliferation, e.g., for treatment of cancer and other diseases of cellular proliferation.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw. D
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☐ 23. Document ID: WO 2006020767 A2, US 20060052416 A1

L4: Entry 23 of 24

File: DWPI

Feb 23, 2006

DERWENT-ACC-NO: 2006-174142

DERWENT-WEEK: 200618

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TITLE: New 2-amido-thiazole-based compounds useful in the treatment of e.g. transplant rejection, osteoarthritis, multiple sclerosis, diabetes, inflammatory bowel disease, myasthenia gravis, Alzheimer's disease and Parkinson's disease

INVENTOR: CHEN, K; DICKSON, J K ; HODGE, C N ; MENDOZA, J S

PRIORITY-DATA: 2004US-608834P (September 10, 2004), 2004US-601266P (August 13, 2004), 2005US-0202927 (August 11, 2005)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
WO 2006020767 A2	February 23, 2006	E	141	A61K031/4709
US 20060052416 A1	March 9, 2006		000	A61K031/4709

INT-CL (IPC): A61 K 31/426; A61 K 31/4427; A61 K 31/4439; A61 K 31/4709;  
C07 D 417/00; C07 D 417/02

ABSTRACTED-PUB-NO: WO2006020767A

BASIC-ABSTRACT:

NOVELTY - 2-Amido-thiazole-based compounds are new.

DETAILED DESCRIPTION - 2-Amido-thiazole-based compounds of formula (I), their salts, solvates, chelates, non-covalent complexes and prodrugs are new.

R3=hydroxy, alkoxy, optionally substituted (os) amino, or Ar;

Ar=cycloalkyl or (hetero)aryl (all os);

L=0-4C alkylene, substituted 1-4C alkylene, -(0-4C alkylene)-NH-(C=O)-, or -(0-4C alkylene)(C=O)-;

W=alkyl, (hetero)cycloalkyl, or (hetero)aryl (all os), hydrogen or halo;

Q=alkyl, cycloalkyl, cycloheteroalkyl, or (hetero)aryl (all os);

Z=os alkyl.

Provided that:

(1) when Q is os pyridin-3-yl, L is a covalent bond, W is 3-methylphenyl, R3 is os pyridin-4-yl, then Z is other than methyl;

(2) when Ar is pyridin-4-yl, W is hydrogen, and Q is benzyl or phenethyl (both os), then Z is other than os lower alkyl;

(3) when Ar is 2-oxo-(3-hydroquinolyl), W is hydrogen, Z is methyl, then Q is other

than phenyl;

(4) when W is 2-(cyclohexylamino)pyridin-4-yl or 2-(cyclopentylamino)pyridin-4-yl, Ar is 3-methylphenyl, Z is methyl, then Q is other than pyridin-3-yl or 6-methylpyridin-3-yl;

(5) Ar is other than substituted pyridone or benzoyloxypyridine;

(6) Q is other than os heteroaryl, or os heterocycloalkyl comprising at least one of S and N, fused with os (hetero)aryl ring;

(7) when Z is lower alkyl or 3-morpholinopropyl, then Ar is other than phenyl, 4-methoxyphenyl, or 2,5-dimethoxyphenyl;

(8) when Ar is pyridinyl, L is a covalent bond, Z is hydrogen or methyl, and W is phenyl substituted with methoxy, methyl, chloro, fluoro, or tert-butyl, then Q is other than methyl; and

(9) when Ar is 4-tert-butylphenyl, L is a covalent bond, Z is propyl and Q is 1-cyano-2-hydroxy-prop-1-enyl, then W is other than hydrogen.

INDEPENDENT CLAIMS are included for the following:

(A) a pharmaceutical composition comprising (I) and pharmaceutical vehicle; and

(B) a packaged pharmaceutical formulation comprising the pharmaceutical composition and instructions for using the composition in the treatment of diseases responsive to inhibition of at least one ATP-utilizing enzyme.

ACTIVITY - Immunosuppressive; Osteopathic; Antiarthritic; Antirheumatic; Neuroprotective; Antidiabetic; Ophthalmological; Antiasthmatic; Antiinflammatory; Gastrointestinal-Gen.; Nephrotropic; Immunomodulator; Antibacterial; Dermatological; Muscular-Gen.; Antipsoriatic; Antiseborrheic; Nootropic; Antiparkinsonian; Cytostatic; Virucide; Fungicide; Cardiant; Cerebroprotective; Vasotropic; Anorectic; Gynecological; Antiarteriosclerotic; Respiratory-Gen.; Vulnerary; Anti-HIV. Test details are described but no results given.

MECHANISM OF ACTION - Adenosine triphosphate (ATP)-utilizing enzyme inhibitor; Apoptosis inducer. The efficacy of (I) to induce apoptosis in target cells (e.g. transformed cell lines such as PC3) was evaluated by measuring Caspase 3 induction with the Promega Caspase-Glo 3/7 Assay system. (I) Showed an EC50 value of at most 30  $\mu$  M.

USE - For inhibiting ATP-utilizing enzymes e.g. human protein kinase (e.g. AKT1, AKT2, AMP kinase, AXL, AURORA-A, BMX, CDK2/cyclinA, CDK2/cyclinE, CHEK1, CHEK2, CK2, DYRK2, EGFR, EPHB4, FLT3, GSK3-  $\alpha$  /  $\beta$  , IGF1R, INSR, KDR, KIT, MAPKAPK2, MAPKAPK3, MET, MSK2, NEK2, P70S6K1, PAK2, PDGFR-  $\alpha$  , PDK1, PIM1 kinase, PLK1, ROCK2, RSK2, SYK, TIE2, TRKB, and ZAP70); and for the treatment of transplant rejection, osteoarthritis, rheumatoid arthritis, multiple sclerosis, diabetic retinopathy, asthma, inflammatory bowel disease, renal disease, cachexia, septic shock, lupus, diabetes mellitus, myasthenia gravis, psoriasis, dermatitis, eczema, seborrhea, Alzheimer's disease, Parkinson's disease, stem cell protection during chemotherapy, ex vivo selection or ex vivo purging for autologous or allogeneic bone marrow transplantation, leukemia, ocular disease, corneal disease, glaucoma, bacterial infections, viral infections, fungal infections, heart disease, stroke, obesity, endometriosis, atherosclerosis, vein graft stenosis, perianastomatic prosthetic graft stenosis, prostate hyperplasia, chronic obstructive pulmonary disease, inhibition of neurological damage due to tissue repair, scar tissue formation, wound healing, pulmonary disease, neoplasm, macular degeneration, cancer (including glioblastoma, ovarian cancer, breast cancer, endometrial

carcinoma, hepatocellular carcinoma, melanoma, colorectal cancer, colon cancer, digestive tract, lung cancer, renal-cell carcinoma, thyroid, lymphoid, prostate cancer and pancreatic cancer, advanced tumors, hairy cell leukemia, melanoma, chronic myelogenous leukemia, advanced head and neck, squamous cell cancer, metastatic renal cell, non-Hodgkin's lymphoma, metastatic breast, breast adenocarcinoma, advanced melanoma, pancreatic, gastric, non-small cell lung, small cell lung, renal cell carcinoma, various solid tumors, multiple myeloma, metastatic prostate, malignant glioma, renal cancer, lymphoma, refractory metastatic disease, refractory multiple myeloma, cervical cancer, Kaposi's sarcoma, recurrent anaplastic glioma, metastatic colon cancer; and a range of various specified forms of cardiac, lung, esophagus, stomach, pancreas, large bowel, kidney, bladder, prostate, testis, liver, bone, nervous system, skull, meninges, brain, spinal cord, uterus, cervix, ovary, vulva, vagina, blood, skin and adrenal gland cancers (claimed).

ADVANTAGE - The 2-amido-thiazole-based compounds selectively inhibit functioning of various ATP-utilizing enzymes, hence are effective therapeutic agents for treating variety of diseases associated with the ATP-utilizing enzymes.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	FIGS	Drawings
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☐ 24. Document ID: AU 2003242678 A8, WO 2003106681 A2, AU 2003242678 A1, DE 10226702 A1

L4: Entry 24 of 24

File: DWPI

Nov 3, 2005

DERWENT-ACC-NO: 2004-142780

DERWENT-WEEK: 200629

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TITLE: New oligonucleotides directed against PIM1 kinase, useful for treating, e.g. pain, urinary incontinence, tumors and inflammation, by gene therapy

INVENTOR: ALTAN, O; ERDMANN, V ; GRUNWELLER, A ; KURRECK, J ; GRUENWELLER, A

PRIORITY-DATA: 2002DE-1026702 (June 14, 2002)

#### PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
AU 2003242678 A8	November 3, 2005		000	C12N015/11
WO 2003106681 A2	December 24, 2003	G	037	C12N015/11
AU 2003242678 A1	December 31, 2003		000	C12N015/11
DE 10226702 A1	September 9, 2004		000	C07H021/00

INT-CL (IPC): A61 K 31/7088; A61 K 38/00; A61 K 48/00; C07 H 21/00; C12 N 15/11; C12 Q 1/68; G01 N 33/573

ABSTRACTED-PUB-NO: WO2003106681A

BASIC-ABSTRACT:

NOVELTY - Oligonucleotides (ON1) that contain, or correspond to, one of 54 sequences, given in the specification, or that differ from them by at most one base, are new.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:



- (1) oligonucleotides (ON2) that contain, or correspond to, any of 22 sequences, reproduced, or differ from them by at most two bases;
- (2) oligonucleotides (ON3) that contain, or correspond to, any of 4 sequences specified for ON1, or differ from them by at most two bases;
- (3) polynucleotide construct (PC) that contains at least one ON1-ON3;
- (4) cells that contain ON1-ON3 and/or PC;
- (5) pharmaceutical or diagnostic composition containing ON1-ON3, PC and/or the cells of (4), optionally also additives;
- (6) method for identifying modulators of pain, based on binding of (labeled) ON1-ON3 and/or PC to an RNA; and
- (7) method for diagnosing diseases associated with altered expression of genes of the PIM kinase family by measuring binding, as in method (6).

ACTIVITY - Analgesic; Uropathic; Antipruritic; Cytostatic; Antiinflammatory; Antiasthmatic. Test methods are described but no results are given.

MECHANISM OF ACTION - Antisense and catalytic inhibition of PIM kinases; Antisense gene therapy.

USE - ON1 (also related oligonucleotides), polynucleotide constructs (PC) containing them, and cells containing PC or the oligonucleotides are useful for treating (including by in vivo or in vitro gene therapy) (i) pain, especially chronic, heat-induced or inflammatory pain, or tactile allodynia and (ii) urinary incontinence, neurogenic bladder symptoms, pruritus, tumors and inflammation, especially PIM1-kinase associated inflammation such as asthma, or generally any PIM1-related disease symptoms. They can also be used to screen for analgesic agents and for diagnosis of diseases associated with expression of PIM family genes.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw. D.
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Terms	Documents
pim1 and (inhibitor or specificity or modulator)	24

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Search Results - Record(s) 1 through 30 of 45 returned.

☐ 1. Document ID: US 20060094678 A1

L6: Entry 1 of 45

File: PGPB

May 4, 2006

PGPUB-DOCUMENT-NUMBER: 20060094678

PGPUB-FILING-TYPE:

DOCUMENT-IDENTIFIER: US 20060094678 A1

TITLE: Nuclease resistant double-stranded ribonucleic acid

PUBLICATION-DATE: May 4, 2006

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Vornlocher; Hans-Peter	Bayreuth	MA	DE
Roehl; Ingo	Memmelsdorf	MA	DE
Hadwiger; Philipp	Altenkunstadt	MA	DE
Zimmermann; Tracy Stage	Somerville	MA	US
Manoharan; Muthiah	Weston		US
Rajeev; Kallanthottathil G.	Cambridge		US
Akinc; Akin	Newton		US

US-CL-CURRENT: [514/44](#); [536/23.1](#)

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw D
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☐ 2. Document ID: US 20060068414 A1

L6: Entry 2 of 45

File: PGPB

Mar 30, 2006

PGPUB-DOCUMENT-NUMBER: 20060068414

PGPUB-FILING-TYPE:

DOCUMENT-IDENTIFIER: US 20060068414 A1

TITLE: Identification of aging genes through large-scale analysis

PUBLICATION-DATE: March 30, 2006

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Kennedy; Brian K.	Redmond	WA	US
Kaeberlein; Matthew R.	Kirkland	WA	US

US-CL-CURRENT: 435/6; 702/20

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw D
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☐ 3. Document ID: US 20060056948 A1

L6: Entry 3 of 45

File: PGPB

Mar 16, 2006

PGPUB-DOCUMENT-NUMBER: 20060056948

PGPUB-FILING-TYPE:

DOCUMENT-IDENTIFIER: US 20060056948 A1

TITLE: Methods

PUBLICATION-DATE: March 16, 2006

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Hossain; M. Zakir	Singapore		SG
Hunziker; Walter	Singapore		SG

US-CL-CURRENT: 414/422; 280/79.3

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw D
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☐ 4. Document ID: US 20060053500 A1

L6: Entry 4 of 45

File: PGPB

Mar 9, 2006

PGPUB-DOCUMENT-NUMBER: 20060053500

PGPUB-FILING-TYPE:

DOCUMENT-IDENTIFIER: US 20060053500 A1

TITLE: Modification of sugar metabolic processes in transgenic cells, tissues and animals

PUBLICATION-DATE: March 9, 2006

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Koike; Chihiro	Pittsburgh	PA	US

US-CL-CURRENT: 800/8; 435/193, 435/320.1, 435/325, 435/69.1, 800/17

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw D
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☐ 5. Document ID: US 20060024819 A1

L6: Entry 5 of 45

File: PGPB

Feb 2, 2006

PGPUB-DOCUMENT-NUMBER: 20060024819  
PGPUB-FILING-TYPE:  
DOCUMENT-IDENTIFIER: US 20060024819 A1

TITLE: Integration vectors

PUBLICATION-DATE: February 2, 2006

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Finney; Robert E.	Shoreline	WA	US

US-CL-CURRENT: 435/320.1

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw. De
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☐ 6. Document ID: US 20050287668 A1

L6: Entry 6 of 45

File: PGPB

Dec 29, 2005

PGPUB-DOCUMENT-NUMBER: 20050287668  
PGPUB-FILING-TYPE: new  
DOCUMENT-IDENTIFIER: US 20050287668 A1

TITLE: RNA interference compositions and screening methods for the identification of novel genes and biological pathways

PUBLICATION-DATE: December 29, 2005

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Finney, Robert E.	Shoreline	WA	US

US-CL-CURRENT: 435/455

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw. De
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☐ 7. Document ID: US 20050266561 A1

L6: Entry 7 of 45

File: PGPB

Dec 1, 2005

PGPUB-DOCUMENT-NUMBER: 20050266561  
PGPUB-FILING-TYPE: new  
DOCUMENT-IDENTIFIER: US 20050266561 A1

TITLE: Use of interfering RNA in the production of transgenic animals

PUBLICATION-DATE: December 1, 2005

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
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Wells, Kevin

Christiansburg

VA

US

US-CL-CURRENT: 435/455; 435/366, 435/456, 536/23.1

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw. De
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☐ 8. Document ID: US 20050260639 A1

L6: Entry 8 of 45

File: PGPB

Nov 24, 2005

PGPUB-DOCUMENT-NUMBER: 20050260639

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20050260639 A1

TITLE: Method for diagnosing pancreatic cancer

PUBLICATION-DATE: November 24, 2005

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Nakamura, Yusuke	Yokohama-shi		JP
Katagiri, Toyomasa	Shinagawa-ku		JP
Nakagawa, Hidewaki	Shinagawa-ku		JP

US-CL-CURRENT: 435/6

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw. De
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☐ 9. Document ID: US 20050239110 A1

L6: Entry 9 of 45

File: PGPB

Oct 27, 2005

PGPUB-DOCUMENT-NUMBER: 20050239110

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20050239110 A1

TITLE: Method of diagnosing depression

PUBLICATION-DATE: October 27, 2005

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Rokutan, Kazuhito	Osaka		JP
Ohmori, Tetsuro	Tokushima		JP
Morita, Kyoko	Tokushima		JP
Ohta, Masayuki	Kodaira		JP
Saito, Toshiro	Hatoyama		JP

US-CL-CURRENT: 435/6

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	RMMC	Draw. D.
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☐ 10. Document ID: US 20050221328 A1

L6: Entry 10 of 45

File: PGPB

Oct 6, 2005

PGPUB-DOCUMENT-NUMBER: 20050221328

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20050221328 A1

TITLE: Inhibitors of inflammatory gene activity and cholesterol biosynthesis

PUBLICATION-DATE: October 6, 2005

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Evans, Mark J	Radnor	PA	US
Harnish, Douglas C.	Pennsburg	PA	US

US-CL-CURRENT: 435/6; 435/455

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	RMMC	Draw. D.
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☐ 11. Document ID: US 20050221280 A1

L6: Entry 11 of 45

File: PGPB

Oct 6, 2005

PGPUB-DOCUMENT-NUMBER: 20050221280

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20050221280 A1

TITLE: Protein-protein interactions for pharmacological profiling

PUBLICATION-DATE: October 6, 2005

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Westwick, John K.	San Ramon	CA	US
Keon, Brigitte	Castro Valley	CA	US
MacDonald, Marnie L.	Pleasanton	CA	US
Michnick, Stephen William Watson	Montreal		CA

US-CL-CURRENT: 435/4

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	RMMC	Draw. D.
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☐ 12. Document ID: US 20050197313 A1

L6: Entry 12 of 45

File: PGPB

Sep 8, 2005

PGPUB-DOCUMENT-NUMBER: 20050197313  
PGPUB-FILING-TYPE: new  
DOCUMENT-IDENTIFIER: US 20050197313 A1

TITLE: Multiple promoter expression cassettes for simultaneous delivery of RNAi agents

PUBLICATION-DATE: September 8, 2005

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Roelvink, Petrus W.	Campbell	CA	US
Suhy, David A.	Castro Valley	CA	US
Kolykhalov, Alexander A.	Saratoga	CA	US

US-CL-CURRENT: 514/44; 435/456, 536/23.72

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw. D
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☐ 13. Document ID: US 20050164300 A1

L6: Entry 13 of 45

File: PGPB

Jul 28, 2005

PGPUB-DOCUMENT-NUMBER: 20050164300  
PGPUB-FILING-TYPE: new  
DOCUMENT-IDENTIFIER: US 20050164300 A1

TITLE: Molecular scaffolds for kinase ligand development

PUBLICATION-DATE: July 28, 2005

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Artis, Dean R.	Kensington	CA	US
Bremer, Ryan E.	Oakland	CA	US
Gillette, Samuel J.	Oakland	CA	US
Hurt, Clarence R.	San Ramon	CA	US
Ibrahim, Prabha L.	Mountain View	CA	US
Zuckerman, Rebecca L.	Alameda	CA	US

US-CL-CURRENT: 435/7.1; 702/19

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw. D
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☐ 14. Document ID: US 20050164235 A1

L6: Entry 14 of 45

File: PGPB

Jul 28, 2005

PGPUB-DOCUMENT-NUMBER: 20050164235

PGPUB-FILING-TYPE: new  
DOCUMENT-IDENTIFIER: US 20050164235 A1

TITLE: Modified iRNA agents

PUBLICATION-DATE: July 28, 2005

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Manoharan, Muthiah	Weston	MA	US
Rajeev, Kallanthottathil G.	Cambridge	MA	US

US-CL-CURRENT: 435/6; 536/25.32

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw. Des
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☐ 15. Document ID: US 20050158283 A1

L6: Entry 15 of 45

File: PGPB

Jul 21, 2005

PGPUB-DOCUMENT-NUMBER: 20050158283  
PGPUB-FILING-TYPE: new  
DOCUMENT-IDENTIFIER: US 20050158283 A1

TITLE: Methods and compositions for the production of adenoviral vectors

PUBLICATION-DATE: July 21, 2005

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Zhang, Shuyuan	Sugar Land	TX	US
Pham, Hai	Houston	TX	US

US-CL-CURRENT: 424/93.2; 435/235.1, 435/456

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw. Des
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☐ 16. Document ID: US 20050143382 A1

L6: Entry 16 of 45

File: PGPB

Jun 30, 2005

PGPUB-DOCUMENT-NUMBER: 20050143382  
PGPUB-FILING-TYPE: new  
DOCUMENT-IDENTIFIER: US 20050143382 A1

TITLE: Heterocyclic compounds as pharmaceutically active compounds

PUBLICATION-DATE: June 30, 2005

INVENTOR-INFORMATION:



NAME	CITY	STATE	COUNTRY
Aulinger-Fuchs, Katharina	Neuried		DE
Herz, Thomas	Stockdorf		DE
Krauss, Rolf	Planegg-Martinsried		DE
Kubbatat, Michael	Schallstadt		DE
Lang, Martin	Grafelfing		DE
Schachtele, Christoph	Freiburg		DE
Totzke, Frank	Freiburg		DE

US-CL-CURRENT: [514/249](#); [544/350](#)

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	RMMC	Draw. De
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☐ 17. Document ID: US 20050119214 A1

L6: Entry 17 of 45

File: PGPB

Jun 2, 2005

PGPUB-DOCUMENT-NUMBER: 20050119214

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20050119214 A1

TITLE: Nuclease resistant double-stranded ribonucleic acid

PUBLICATION-DATE: June 2, 2005

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Manoharan, Muthiah	Weston	MA	US
Rajeev, Kallanthottathil G.	Cambridge	MA	US

US-CL-CURRENT: [514/44](#); [435/6](#), [536/23.1](#)

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	RMMC	Draw. De
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☐ 18. Document ID: US 20050118665 A1

L6: Entry 18 of 45

File: PGPB

Jun 2, 2005

PGPUB-DOCUMENT-NUMBER: 20050118665

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20050118665 A1

TITLE: Methods for conducting assays for enzyme activity on protein microarrays

PUBLICATION-DATE: June 2, 2005

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Zhou, Fang X.	New Haven	CT	US

Schweitzer, Barry

Cheshire

CT

US

US-CL-CURRENT: 435/23; 435/6

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw. De
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☐ 19. Document ID: US 20050107386 A1

L6: Entry 19 of 45

File: PGPB

May 19, 2005

PGPUB-DOCUMENT-NUMBER: 20050107386

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20050107386 A1

TITLE: Methods of treating diseases and disorders by targeting multiple kinases

PUBLICATION-DATE: May 19, 2005

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Narla, Rama Krishna	San Diego	CA	US
Sakata, Steven	San Diego	CA	US

US-CL-CURRENT: 514/243; 514/248, 514/249, 514/262.1, 514/310, 514/314, 514/383

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw. De
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☐ 20. Document ID: US 20050032794 A1

L6: Entry 20 of 45

File: PGPB

Feb 10, 2005

PGPUB-DOCUMENT-NUMBER: 20050032794

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20050032794 A1

TITLE: Diamine derivatives of quinone and uses thereof

PUBLICATION-DATE: February 10, 2005

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Padia, Janak K.	Germantown	MD	US
O'Brien, Sean	Gaithersburg	MD	US
Lu, Jiemin	Germantown	MD	US
Pikul, Stanislaw	Germantown	MD	US

US-CL-CURRENT: 514/230.5; 514/248, 514/249, 514/266.1, 514/310, 514/311, 514/619, 544/105, 544/235, 544/283, 544/353, 546/139, 546/176, 552/292

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw. De
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☐ 21. Document ID: US 20050019927 A1

L6: Entry 21 of 45

File: PGPB

Jan 27, 2005

PGPUB-DOCUMENT-NUMBER: 20050019927

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20050019927 A1

TITLE: DECREASING GENE EXPRESSION IN A MAMMALIAN SUBJECT IN VIVO VIA AAV-MEDIATED RNAi EXPRESSION CASSETTE TRANSFER

PUBLICATION-DATE: January 27, 2005

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Hildinger, Markus	Boston	MA	US
Auricchio, Alberto	Napoli		IT

US-CL-CURRENT: 435/456; 435/375, 514/44

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	RWMC	Draw. D.
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☐ 22. Document ID: US 20050014166 A1

L6: Entry 22 of 45

File: PGPB

Jan 20, 2005

PGPUB-DOCUMENT-NUMBER: 20050014166

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20050014166 A1

TITLE: Compositions and systems for the regulation of genes

PUBLICATION-DATE: January 20, 2005

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Trono, Didier	Collonge		CH
Wiznerowicz, Maciej	Geneva		CH

US-CL-CURRENT: 435/6; 424/93.2, 435/456

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	RWMC	Draw. D.
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☐ 23. Document ID: US 20040229335 A1

L6: Entry 23 of 45

File: PGPB

Nov 18, 2004

PGPUB-DOCUMENT-NUMBER: 20040229335

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20040229335 A1

TITLE: Methods and compositions for the production of adenoviral vectors

PUBLICATION-DATE: November 18, 2004

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Zhang, Shuyuan	Sugar Land	TX	US
Pham, Hai	Houston	TX	US

US-CL-CURRENT: 435/235.1; 435/456

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw. D
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☐ 24. Document ID: US 20040199940 A1

L6: Entry 24 of 45

File: PGPB

Oct 7, 2004

PGPUB-DOCUMENT-NUMBER: 20040199940

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20040199940 A1

TITLE: Nucleic acid molecules and other molecules associated with sterol synthesis and metabolism

PUBLICATION-DATE: October 7, 2004

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Karunanandaa, Balasulojini	Creve Coeur	MO	US
Yu, Jaehyuk	Madison	WI	US
Kishore, Ganesh	Creve Coeur	MO	US

US-CL-CURRENT: 800/281; 435/193, 435/419, 435/468, 435/69.1, 536/23.2

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw. D
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☐ 25. Document ID: US 20040171062 A1

L6: Entry 25 of 45

File: PGPB

Sep 2, 2004

PGPUB-DOCUMENT-NUMBER: 20040171062

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20040171062 A1

TITLE: Methods for the design of molecular scaffolds and ligands

PUBLICATION-DATE: September 2, 2004

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Hirth, Klaus-Peter	San Francisco	CA	US
Milburn, Michael Vance	Emeryville	CA	US

US-CL-CURRENT: 435/7.1; 702/19

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw D
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☐ 26. Document ID: US 20040158879 A1

L6: Entry 26 of 45

File: PGPB

Aug 12, 2004

PGPUB-DOCUMENT-NUMBER: 20040158879

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20040158879 A1

TITLE: Polynucleotide and polypeptide fat metabolism regulators and uses thereof

PUBLICATION-DATE: August 12, 2004

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Ruvkun, Gary	Newton	MA	US
Ashrafi, Kaveh	San Francisco	CA	US

US-CL-CURRENT: 800/3; 800/8

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw D
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☐ 27. Document ID: US 20040146942 A1

L6: Entry 27 of 45

File: PGPB

Jul 29, 2004

PGPUB-DOCUMENT-NUMBER: 20040146942

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20040146942 A1

TITLE: Screening method using PIM1-kinase or PIM3-kinase

PUBLICATION-DATE: July 29, 2004

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Weihe, Eberhard	Marburg		DE
Schaefer, Martin K.H.	Marburg		DE

US-CL-CURRENT: 435/7.1

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw D
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☐ 28. Document ID: US 20040142864 A1

L6: Entry 28 of 45

File: PGPB

Jul 22, 2004

PGPUB-DOCUMENT-NUMBER: 20040142864

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20040142864 A1

TITLE: Crystal structure of PIM-1 kinase

PUBLICATION-DATE: July 22, 2004

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Bremer, Ryan	Oakland	CA	US
Ibrahim, Prabha	Mountain View	CA	US
Kumar, Abhinav	Pleasant Hill	CA	US
Mandiyani, Valsan	Bloomfield	NJ	US
Milburn, Michael V.	Emeryville	CA	US

US-CL-CURRENT: [514/12](#); [435/7.1](#)

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	RIMC	Draw. De
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☐ 29. Document ID: US 20040126784 A1

L6: Entry 29 of 45

File: PGPB

Jul 1, 2004

PGPUB-DOCUMENT-NUMBER: 20040126784

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20040126784 A1

TITLE: Modulators of cellular proliferation

PUBLICATION-DATE: July 1, 2004

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Hitoshi, Yasumichi	Brisbane	CA	US
Jenkins, Yonchu	Oakland	CA	US
Markovtsov, Vadim	Foster City	CA	US

US-CL-CURRENT: [435/6](#); [435/7.2](#)

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	RIMC	Draw. De
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☐ 30. Document ID: US 20040067507 A1

L6: Entry 30 of 45

File: PGPB

Apr 8, 2004

PGPUB-DOCUMENT-NUMBER: 20040067507

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20040067507 A1

TITLE: Liver inflammation predictive genes

PUBLICATION-DATE: April 8, 2004

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Nolan, Timothy D.	West Palm Beach	FL	US
Sankar, Usha	Port Washington	NY	US
Kier, Larry D.	Santa Fe	NM	US
Derbel, Maher	Cambridge	MA	US

US-CL-CURRENT: 435/6; 702/20

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWAC	Drawings
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Terms

pim1 same(inhibitor or specificity or  
modulator)

Documents

45

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☐ 31. Document ID: US 20040058340 A1

L6: Entry 31 of 45

File: PGPB

Mar 25, 2004

PGPUB-DOCUMENT-NUMBER: 20040058340

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20040058340 A1

TITLE: Diagnosis and prognosis of breast cancer patients

PUBLICATION-DATE: March 25, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Dai, HongYue	Bothell	WA	US
He, Yudong	Kirkland	WA	US
Linsley, Peter S.	Seattle	WA	US
Mao, Mao	Kirkland	WA	US
Roberts, Christopher J.	Seattle	WA	US
Van't Veer, Laura Johanna	Amsterdam		NL
Van de Vijver, Marc J.	Amsterdam		NL
Bernards, Rene	Abcoude		NL
Hart, A.A. M.	Castricum		NL

US-CL-CURRENT: [435/6](#)

<a href="#">Full</a>	<a href="#">Title</a>	<a href="#">Citation</a>	<a href="#">Front</a>	<a href="#">Review</a>	<a href="#">Classification</a>	<a href="#">Date</a>	<a href="#">Reference</a>	<a href="#">Sequences</a>	<a href="#">Attachments</a>	<a href="#">Claims</a>	<a href="#">KIMC</a>	<a href="#">Draw D</a>
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☐ 32. Document ID: US 20040033602 A1

L6: Entry 32 of 45

File: PGPB

Feb 19, 2004

PGPUB-DOCUMENT-NUMBER: 20040033602

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20040033602 A1

TITLE: Methods and compositions relating to polypeptides with RNase III domains that mediate RNA interference

PUBLICATION-DATE: February 19, 2004

INVENTOR-INFORMATION:



NAME	CITY	STATE	COUNTRY
Ford, Lance P.	Austin	TX	US
Brown, David	Austin	TX	US

US-CL-CURRENT: 435/455; 514/44

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw D
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☐ 33. Document ID: US 20040029275 A1

L6: Entry 33 of 45

File: PGPB

Feb 12, 2004

PGPUB-DOCUMENT-NUMBER: 20040029275  
PGPUB-FILING-TYPE: new  
DOCUMENT-IDENTIFIER: US 20040029275 A1

TITLE: Methods and compositions for reducing target gene expression using cocktails of siRNAs or constructs expressing siRNAs

PUBLICATION-DATE: February 12, 2004

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Brown, David	Austin	TX	US
Ford, Lance P.	Austin	TX	US
Jarvis, Rich	Austin	TX	US

US-CL-CURRENT: 435/375; 435/6, 514/44

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw D
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☐ 34. Document ID: US 20040018513 A1

L6: Entry 34 of 45

File: PGPB

Jan 29, 2004

PGPUB-DOCUMENT-NUMBER: 20040018513  
PGPUB-FILING-TYPE: new  
DOCUMENT-IDENTIFIER: US 20040018513 A1

TITLE: Classification and prognosis prediction of acute lymphoblastic leukemia by gene expression profiling

PUBLICATION-DATE: January 29, 2004

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Downing, James R.	Cordova	TN	US
Yeoh, Eng-Juh	Singapore	MS	SG
Wilkins, Dawn E.	Oxford		US
Wong, Limsoon	Singapore		SG

US-CL-CURRENT: 435/6

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw D.
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☐ 35. Document ID: US 20040014040 A1

L6: Entry 35 of 45

File: PGPB

Jan 22, 2004

PGPUB-DOCUMENT-NUMBER: 20040014040

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20040014040 A1

TITLE: Cardiotoxin molecular toxicology modeling

PUBLICATION-DATE: January 22, 2004

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Mendrick, Donna	Gaithersburg	MD	US
Porter, Mark	Gaithersburg	MD	US
Johnson, Kory	Gaithersburg	MD	US
Higgs, Brandon	Gaithersburg	MD	US
Castle, Arthur	Gaithersburg	MD	US
Elashoff, Michael	Gaithersburg	MD	US

US-CL-CURRENT: 435/6; 702/20

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw D.
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☐ 36. Document ID: US 20040010119 A1

L6: Entry 36 of 45

File: PGPB

Jan 15, 2004

PGPUB-DOCUMENT-NUMBER: 20040010119

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20040010119 A1

TITLE: Novel proteins and nucleic acids encoding same

PUBLICATION-DATE: January 15, 2004

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Guo, Xiaojia	Branford	CT	US
Fernandes, Elma	Branford	CT	US
Li, Li	Branford	CT	US
Kekuda, Ramesh	Stamford	CT	US
Liu, Yi	New Haven	CT	US
Leite, Mario	Milford	CT	US

Spytek, Kimberly A.	New Haven	CT	US
Ji, Weizhen	Branford	CT	US
Casman, Stacie J.	North Haven	CT	US
Boldog, Ference L.	North Haven	CT	US
Patturajan, Meera	Branford	CT	US
Vernet, Corine A. M.	Branford	CT	US
Ballinger, Robert A.	Newington	CT	US
Malyankar, Uriel M.	Branford	CT	US
Tchernev, Velizar T.	Branford	CT	US
Blalock, Angela D.	Branford	CT	US
Gusev, Vladimir Y.	Madison	CT	US
Rastelli, Luca	Guilford	CT	US
Mezes, Peter D.	Old Lyme	CT	US
Ellerman, Karen	Branford	CT	US
Heyes, Melvyn	New Haven	CT	US
Herrmann, John L.	Guilford	CT	US
Shimkets, Richard A.	Guilford	CT	US
Ioime, Noelle	Hamden	CT	US
Pena, Carol E. A.	New Haven	CT	US
Shenoy, Suresh G.	Branford	CT	US
Taupier, Raymond J. JR.	East Haven	CT	US
Gerlach, Valerie	Branford	CT	US
Gorman, Linda	East Haven	CT	US

US-CL-CURRENT: [530/350](#); [435/320.1](#), [435/325](#), [435/6](#), [435/69.1](#), [536/23.2](#)

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. De
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☐ 37. Document ID: US 20030224374 A1

L6: Entry 37 of 45

File: PGPB

Dec 4, 2003

PGPUB-DOCUMENT-NUMBER: 20030224374

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20030224374 A1

TITLE: Diagnosis and prognosis of breast cancer patients

PUBLICATION-DATE: December 4, 2003

#### INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Dai, HongYue	Bothell	WA	US
He, Yudong	Kirkland	WA	US
Linsley, Peter S.	Seattle	WA	US
Mao, Mao	Kirkland	WA	US
Roberts, Christopher J.	Seattle	WA	US
Van't Veer, Laura Johanna	Amsterdam		NL

Van de Vijver, Marc J.	Amsterdam	NL
Bernards, Rene	Abcoude	NL
Hart, A.A. M.	Castricum	NL

US-CL-CURRENT: 435/6

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	RMIC	Draw D
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☐ 38. Document ID: US 20030186936 A1

L6: Entry 38 of 45

File: PGPB

Oct 2, 2003

PGPUB-DOCUMENT-NUMBER: 20030186936  
PGPUB-FILING-TYPE: new  
DOCUMENT-IDENTIFIER: US 20030186936 A1

TITLE: Hyaluronic acid mediated adenoviral transduction

PUBLICATION-DATE: October 2, 2003

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Chaudhuri, Saumya-Ray	West Bengal	TX	IN
Hurwitz, Mary Y.	Houston	TX	US
Holcombe, Vien	Houston	TX	US
Marcus, Karen T.	Sugarland	TX	US
Hurwitz, Richard L.	Houston		US

US-CL-CURRENT: 514/54; 435/5

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	RMIC	Draw D
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☐ 39. Document ID: US 20030166282 A1

L6: Entry 39 of 45

File: PGPB

Sep 4, 2003

PGPUB-DOCUMENT-NUMBER: 20030166282  
PGPUB-FILING-TYPE: new  
DOCUMENT-IDENTIFIER: US 20030166282 A1

TITLE: High potency siRNAs for reducing the expression of target genes

PUBLICATION-DATE: September 4, 2003

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Brown, David	Austin	TX	US
Ford, Lance	Austin	TX	US
Jarvis, Rich	Austin	TX	US

Pallotta, Vince	Austin	TX	US
Pasloske, Brittan	Austin	TX	US

US-CL-CURRENT: 435/455; 435/375

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw. De
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☐ 40. Document ID: US 20030154032 A1

L6: Entry 40 of 45

File: PGPB

Aug 14, 2003

PGPUB-DOCUMENT-NUMBER: 20030154032

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20030154032 A1

TITLE: Methods and compositions for diagnosing and treating rheumatoid arthritis

PUBLICATION-DATE: August 14, 2003

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Pittman, Debra D.	Windham	NH	US
Feldman, Jeffrey L.	Arlington	MA	US
Shields, Kathleen M.	Harvard	MA	US
Trepicchio, William L.	Andover	MA	US

US-CL-CURRENT: 702/20

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw. De
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☐ 41. Document ID: US 20030056235 A1

L6: Entry 41 of 45

File: PGPB

Mar 20, 2003

PGPUB-DOCUMENT-NUMBER: 20030056235

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20030056235 A1

TITLE: Genetic inhibition by double-stranded RNA

PUBLICATION-DATE: March 20, 2003

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Fire, Andrew	Baltimore	MD	US
Kostas, Stephen	Chicago	IL	US
Montgomery, Mary	St. Paul	MN	US
Timmons, Lisa	Lawrence	KS	US
Xu, SiQun	Ballwin	MO	US

Tabara, Hiroaki	Shizuoka	RI	JP
Driver, Samuel E.	Providence	MA	US
Mello, Craig C.	Shrewsbury		US

US-CL-CURRENT: 800/8; 435/456, 435/468, 514/44

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	RIMC	Drawings
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☐ 42. Document ID: US 20030055020 A1

L6: Entry 42 of 45

File: PGPB

Mar 20, 2003

PGPUB-DOCUMENT-NUMBER: 20030055020

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20030055020 A1

TITLE: Genetic inhibition by double-stranded RNA

PUBLICATION-DATE: March 20, 2003

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Fire, Andrew	Baltimore	MD	US
Kostas, Stephen	Chicago	IL	US
Montgomery, Mary	St. Paul	MN	US
Timmons, Lisa	Lawrence	KS	US
Xu, SiQun	Ballwin	MO	US
Tabara, Hiroaki	Shizuoka	RI	JP
Driver, Samuel E.	Providence	MA	US
Mello, Craig C.	Shrewsbury		US

US-CL-CURRENT: 514/44; 424/93.2, 435/455, 435/456

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	RIMC	Drawings
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☐ 43. Document ID: US 20030051263 A1

L6: Entry 43 of 45

File: PGPB

Mar 13, 2003

PGPUB-DOCUMENT-NUMBER: 20030051263

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20030051263 A1

TITLE: Genetic inhibition by double-stranded RNA

PUBLICATION-DATE: March 13, 2003

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
------	------	-------	---------

Fire, Andrew	Baltimore	MD	US
Kostas, Stephen	Chicago	IL	US
Montgomery, Mary	St. Paul	MN	US
Timmons, Lisa	Lawrence	KS	US
Xu, SiQun	Ballwin	MO	US
Tabara, Hiroaki	Mishima	RI	JP
Driver, Samuel E.	Providence	MA	US
Mello, Craig C.	Shrewsbury		US

US-CL-CURRENT: [800/13](#); [435/456](#), [435/468](#), [800/280](#)

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw D
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☐ 44. Document ID: US 20030027783 A1

L6: Entry 44 of 45

File: PGPB

Feb 6, 2003

PGPUB-DOCUMENT-NUMBER: 20030027783

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20030027783 A1

TITLE: Inhibiting gene expression with dsRNA

PUBLICATION-DATE: February 6, 2003

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Zernicka-Goetz, Magdalena	Cambridge		GB
Wianny, Florence	Lyon		FR
Evans, Martin John	Cardiff		GB
Glover, David Moore	Bedfordshire		GB

US-CL-CURRENT: [514/44](#); [424/93.2](#), [435/6](#)

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw D
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☐ 45. Document ID: US 20020039734 A1

L6: Entry 45 of 45

File: PGPB

Apr 4, 2002

PGPUB-DOCUMENT-NUMBER: 20020039734

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20020039734 A1

TITLE: Compositions, kits, and methods for identification and modulation of T helper-1 and T helper-2 cells and diseases associated therewith

PUBLICATION-DATE: April 4, 2002

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Hanrahan, Catherine F.	London	MA	GB
Feldmann, Marc	London		GB
Trepicchio, William L.	Andover		US

US-CL-CURRENT: 435/6; 435/7.23

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	RMC	Draw D.
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Terms

Documents

pim1 same(inhibitor or specificity or  
modulator)

45

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☐ 1. Document ID: EP 1558751 A2, WO 2004024895 A2, US 20040142864 A1, AU 2003272548 A1

Using default format because multiple data bases are involved.

L3: Entry 1 of 2

File: DWPI

Aug 3, 2005

DERWENT-ACC-NO: 2004-329479

DERWENT-WEEK: 200551

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TITLE: Novel crystalline form of PIM-1, and a co-crystal of PIM-1 and a PIM-1 binding compound, useful for developing ligands that bind to and modulate PIM-1 and other PIM kinases

INVENTOR: BREMER, R; IBRAHIM, P ; KUMAR, A ; MANDIYAN, V ; MILBURN, M V

PRIORITY-DATA: 2002US-412341P (September 20, 2002), 2002US-411398P (September 16, 2002), 2003US-0664421 (September 16, 2003)

## PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
<u>EP 1558751 A2</u>	August 3, 2005	E	000	C12Q001/48
<u>WO 2004024895 A2</u>	March 25, 2004	E	217	C12N000/00
<u>US 20040142864 A1</u>	July 22, 2004		000	G01N033/53
<u>AU 2003272548 A1</u>	April 30, 2004		000	C12N000/00

INT-CL (IPC): A61 K 38/00; C12 N 0/00; C12 N 9/12; C12 Q 1/48; G01 N 33/53

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	PubID	Draw Da
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☐ 2. Document ID: AU 2003242678 A8, WO 2003106681 A2, AU 2003242678 A1, DE 10226702 A1

L3: Entry 2 of 2

File: DWPI

Nov 3, 2005

DERWENT-ACC-NO: 2004-142780

DERWENT-WEEK: 200629

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TITLE: New oligonucleotides directed against PIM1 kinase, useful for treating, e.g. pain, urinary incontinence, tumors and inflammation, by gene therapy

INVENTOR: ALTAN, O; ERDMANN, V ; GRUNWELLER, A ; KURRECK, J ; GRUENWELLER, A

PRIORITY-DATA: 2002DE-1026702 (June 14, 2002)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
<u>AU 2003242678 A8</u>	November 3, 2005		000	C12N015/11
<u>WO 2003106681 A2</u>	December 24, 2003	G	037	C12N015/11
<u>AU 2003242678 A1</u>	December 31, 2003		000	C12N015/11
<u>DE 10226702 A1</u>	September 9, 2004		000	C07H021/00

INT-CL (IPC): A61 K 31/7088; A61 K 38/00; A61 K 48/00; C07 H 21/00; C12 N 15/11; C12 Q 1/68; G01 N 33/573

ABSTRACTED-PUB-NO: WO2003106681A

BASIC-ABSTRACT:

NOVELTY - Oligonucleotides (ON1) that contain, or correspond to, one of 54 sequences, given in the specification, or that differ from them by at most one base, are new.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

- (1) oligonucleotides (ON2) that contain, or correspond to, any of 22 sequences, reproduced, or differ from them by at most two bases;
- (2) oligonucleotides (ON3) that contain, or correspond to, any of 4 sequences specified for ON1, or differ from them by at most two bases;
- (3) polynucleotide construct (PC) that contains at least one ON1-ON3;
- (4) cells that contain ON1-ON3 and/or PC;
- (5) pharmaceutical or diagnostic composition containing ON1-ON3, PC and/or the cells of (4), optionally also additives;
- (6) method for identifying modulators of pain, based on binding of (labeled) ON1-ON3 and/or PC to an RNA; and
- (7) method for diagnosing diseases associated with altered expression of genes of the PIM kinase family by measuring binding, as in method (6).

ACTIVITY - Analgesic; Uropathic; Antipruritic; Cytostatic; Antiinflammatory; Antiasthmatic. Test methods are described but no results are given.

MECHANISM OF ACTION - Antisense and catalytic inhibition of PIM kinases; Antisense gene therapy.

USE - ON1 (also related oligonucleotides), polynucleotide constructs (PC) containing them, and cells containing PC or the oligonucleotides are useful for treating (including by in vivo or in vitro gene therapy) (i) pain, especially chronic, heat-induced or inflammatory pain, or tactile allodynia and (ii) urinary incontinence, neurogenic bladder symptoms, pruritus, tumors and inflammation, especially PIM1-kinase associated inflammation such as asthma, or generally any PIM1-related disease symptoms. They can also be used to screen for analgesic agents and for diagnosis of diseases associated with expression of PIM family genes.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw. D.
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Terms	Documents
pim kinase and (inhibitor or specificity or modulator)	2

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☒ 1YHS



**Characteristics**

**Classification**

**Compound**

**Authors**

**Crystal structure of Pim-1 bound to staurosporine**

Release Date: 25-Jan-2005 Exp. Method: X Ray Diffraction

Resolution: 2.15 Å

**Transferase**

Mol. Id: 1 Molecule: Proto Oncogene Serine/threonine Protein Kinase Pim 1

Jacobs, M.D., Black, J., Futer, O., Swenson, L., B., Fleming, M., Saxena, K.

☒ 1YI3



**Characteristics**

**Classification**

**Compound**

**Authors**

**Crystal Structure of Pim-1 bound to LY294002**

Release Date: 25-Jan-2005 Exp. Method: X Ray Diffraction

Resolution: 2.50 Å

**Transferase**

Mol. Id: 1 Molecule: Proto Oncogene Serine/threonine Protein Kinase Pim 1

Jacobs, M.D., Black, J., Futer, O., Swenson, L., B., Fleming, M., Saxena, K.

☒ 1YI4



**Characteristics**

**Classification**

**Compound**

**Authors**

**Structure of Pim-1 bound to adenosine**

Release Date: 25-Jan-2005 Exp. Method: X Ray Diffraction

Resolution: 2.40 Å

**Transferase**

Mol. Id: 1 Molecule: Proto Oncogene Serine/threonine Protein Kinase Pim 1

Jacobs, M.D., Black, J., Futer, O., Swenson, L., B., Fleming, M., Saxena, K.

☒ 2BIL



**Characteristics**

**Classification**

**Compound**

**Authors**

**THE HUMAN PROTEIN KINASE PIM1 IN COMPLEX WITH ITS CONSENSUS PEPTIDE PIMTIDE**

Release Date: 07-Feb-2005 Exp. Method: X Ray Diffraction

Resolution: 2.55 Å

**Transferase**

Mol. Id: 1 Molecule: Consensus Pim1 Peptide Pimtide Molecule: Proto Oncogene Serine/threonine Protein Kinase Pim 1

Knapp, S., Debreczeni, J., Bullock, A., Von Delf F., Sundstrom, M., Arrowsmith, C., Edwards, A

K.

☒ 1XQZ**Crystal Structure of hPim-1 kinase at 2.1 Å resolution**

Release Date: 09-Nov-2004 Exp. Method: X Ray Diffraction

Resolution: 2.10 Å

**Characteristics****Classification**

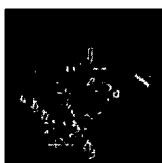
Transferase

**Compound**

Mol. Id: 1 Molecule: Proto Oncogene Serine/threonine Protein Pim 1

**Authors**

Qian, K.C., Wang, L., Hickey, E.R., Studts, J., B K., Peng, C., Kronkaitis, A., Li, J., White, A., Mi S., Farmer, B.

☒ 1XR1**Crystal structure of hPim-1 kinase in complex with AMP-PNP at 2.1 Å Resolution**

Release Date: 09-Nov-2004 Exp. Method: X Ray Diffraction

Resolution: 2.10 Å

**Characteristics****Classification**

Transferase

**Compound**

Mol. Id: 1 Molecule: Proto Oncogene Serine/threonine Protein Pim 1

**Authors**

Qian, K.C., Wang, L., Hickey, E.R., Studts, J., B K., Peng, C., Kronkaitis, A., Li, J., White, A., Mi S., Farmer, B.

☒ 1XWS**Crystal Structure of the human PIM1 kinase domain**

Release Date: 16-Nov-2004 Exp. Method: X Ray Diffraction

Resolution: 1.80 Å

**Characteristics****Classification**

Transferase

**Compound**

Mol. Id: 1 Molecule: Proto Oncogene Serine/threonine Protein Pim 1

**Authors**

Knapp, S., Debreczeni, J., Bullock, A., von Delf F., Sundstrom, M., Arrowsmith, C., Edwards, A K.

☒ 1YWV**Crystal Structures of Proto-Oncogene Kinase Pim1: a Target of Aberrant Somatic Hypermutations in Diffuse Large Cell Lymphoma**

Release Date: 26-Apr-2005 Exp. Method: X Ray Diffraction

Resolution: 2.00 Å

**Characteristics****Classification**

Transferase

**Compound**

Mol. Id: 1 Molecule: Proto Oncogene Serine/threonine Protein Pim 1 Fragment: Catalytic Domain

**Authors**

Kumar, A., Mandiyan, V., Suzuki, Y., Zhang, C., J., Tsai, J., Artis, D.R., Ibrahim, P., Bremer, R.

☒ 1YXS**Crystal Structure of Kinase Pim1 with P123I mutation**

Release Date: 26-Apr-2005 Exp. Method: X Ray Diffraction

Resolution: 2.20 Å

**Characteristics****Classification**

Transferase

**Compound****Authors**

**Mol. Id:** 1 **Molecule:** Proto Oncogene Serine/threonine Prot  
Pim 1 **Fragment:** Catalytic Domain **Mutation:** P123M  
**Kumar, A., Mandiyan, V., Suzuki, Y., Zhang, C.,  
J., Tsai, J., Artis, D.R., Ibrahim, P., Bremer, R.**

☒ 1YXT**Characteristics****Classification****Compound****Authors****Crystal Structure of Kinase Pim1 in complex with AMPPNP**

**Release Date:** 26-Apr-2005 **Exp. Method:** X Ray Diffracti  
**Resolution:** 2.00 Å

**Transferase**

**Mol. Id:** 1 **Molecule:** Proto Oncogene Serine/threonine Prot  
Pim 1 **Fragment:** Catalytic Domain  
**Kumar, A., Mandiyan, V., Suzuki, Y., Zhang, C.,  
J., Tsai, J., Artis, D.R., Ibrahim, P., Bremer, R.**

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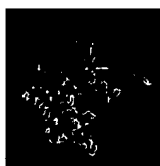
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12

☒ 1YXV
**Characteristics****Classification****Compound****Authors**
**Crystal Structure of Kinase Pim1 in complex with 3,4-Dihydroxy-1-methylquinolin-2(1H)-one**

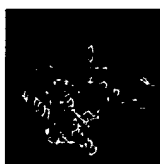
Release Date: 26-Apr-2005   Exp. Method: X Ray Diffraction

Resolution: 2.00 Å

**Transferase**

Mol. Id: 1   Molecule: Proto Oncogene Serine/threonine Protein Kinase Pim 1   Fragment: Catalytic Domain

Kumar, A., Mandiyan, V., Suzuki, Y., Zhang, C., J., Tsai, J., Artis, D.R., Ibrahim, P., Bremer, R.

☒ 1YXX
**Characteristics****Classification****Compound****Authors**
**Crystal Structure of Kinase Pim1 in complex with (3E)-3-[(4-HYDROXYPHENYL)IMINO]-1H-INDOL-2(3H)-ONE**

Release Date: 26-Apr-2005   Exp. Method: X Ray Diffraction

Resolution: 2.00 Å

**Transferase**

Mol. Id: 1   Molecule: Proto Oncogene Serine/threonine Protein Kinase Pim 1   Fragment: Catalytic Domain

Kumar, A., Mandiyan, V., Suzuki, Y., Zhang, C., J., Tsai, J., Artis, D.R., Ibrahim, P., Bremer, R.

☒ 2BZJ
**Characteristics****Classification****Compound****Authors**
**CRYSTAL STRUCTURE OF THE HUMAN PIM1 IN COMPLEX WITH A RUTHENIUM ORGANOMETALLIC LIGAND RU3**

Release Date: 12-Oct-2005   Exp. Method: X Ray Diffraction

Resolution: 2.05 Å

**Transferase**

Mol. Id: 1   Molecule: Proto Oncogene Serine Threonine Protein Kinase Pim1   Mutation: YES

Debreczeni, J.E., Bullock, A., Knapp, S., Von Decker, F., Sundstrom, M., Arrowsmith, C., Weigelt, J., Edwards, A.
















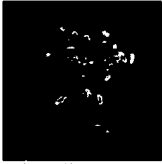



☒ 2BZK
**Characteristics****Classification****Compound**
**CRYSTAL STRUCTURE OF THE HUMAN PIM1 IN COMPLEX WITH AMPPNP AND PIMTIDE**

Release Date: 03-Nov-2005   Exp. Method: X Ray Diffraction

Resolution: 2.45 Å

**Complex Transferase/peptide**

Mol. Id: 1   Molecule: Pimtide   Fragment: Pim1 Consensus Residues 3-9   Mol. Id: 2   Molecule: Proto Oncogene Serine

<input type="checkbox"/>				Protein Kinase Pim1 Mutation: YES Debrezeni, J.E., Bullock, A., Knapp, S., Von De F., Sundstrom, M., Arrowsmith, C., Weigelt, J., Edwards, A.
<input checked="" type="checkbox"/>	2BZH	  		<b>CRYSTAL STRUCTURE OF THE HUMAN PIM1 IN COMPLEX WITH A RUTHENIUM ORGANOMETALLIC LIGAND RU1</b> Release Date: 08-Dec-2005 Exp. Method: X Ray Diffraction Resolution: 1.90 Å Classification: Transferase Mol. Id: 1 Molecule: Proto Oncogene Serine Threonine Protein Kinase Pim1 Mutation: YES Debrezeni, J.E., Bullock, A., Knapp, S., Von De F., Sundstrom, M., Arrowsmith, C., Weigelt, J., Edwards, A.
<input checked="" type="checkbox"/>	2BZI	  		<b>CRYSTAL STRUCTURE OF THE HUMAN PIM1 IN COMPLEX WITH A RUTHENIUM ORGANOMETALLIC LIGAND RU2</b> Release Date: 08-Dec-2005 Exp. Method: X Ray Diffraction Resolution: 1.90 Å Classification: Transferase Mol. Id: 1 Molecule: Proto Oncogene Serine Threonine Protein Kinase Pim1 Mutation: YES Debrezeni, J.E., Bullock, A., Knapp, S., Von De F., Sundstrom, M., Arrowsmith, C., Weigelt, J., Edwards, A.
<input checked="" type="checkbox"/>	2C3I	  		<b>CRYSTAL STRUCTURE OF HUMAN PIM1 IN COMPLEX WITH IMIDAZOPYRIDAZIN I</b> Release Date: 01-Nov-2005 Exp. Method: X Ray Diffraction Resolution: 1.90 Å Classification: Complex Transferase/peptide Mol. Id: 1 Molecule: Pimtide Fragment: Pim1 Consensus Residues 1-8 Mol. Id: 2 Molecule: Proto Oncogene Serine Protein Kinase Pim1 Mutation: YES Philippakopoulos, P., Knapp, S., Debrezeni, J., Bullock, A., Von Delft, F., Sundstrom, M., Arrowsmith, C., Edwards, A., Guo, K., Weigelt, J.
<input checked="" type="checkbox"/>	2BIK	  		<b>HUMAN PIM1 PHOSPHORYLATED ON SER26</b> Release Date: 07-Feb-2005 Exp. Method: X Ray Diffraction Resolution: 1.80 Å Classification: Transferase Mol. Id: 1 Molecule: Proto Oncogene Serine/threonine Protein Kinase Pim1 Knapp, S., Debrezeni, J., Bullock, A., Von Delft, F., Sundstrom, M., Arrowsmith, C., Edwards, A., Weigelt, J.
<input checked="" type="checkbox"/>	1YXU	  		Crystal Structure of Kinase Pim1 in Complex with



**with AMP****Characteristics**

Release Date: 26-Apr-2005 Exp. Method: X Ray Diffraction

**Classification**

Resolution: 2.24 Å

Transferase

**Compound**

Mol. Id: 1 Molecule: Proto Oncogene Serine/threonine Protein

Pim 1 Fragment: Catalytic Domain

**Authors**Kumar, A., Mandiyan, V., Suzuki, Y., Zhang, C.,  
J., Tsai, J., Artis, D.R., Ibrahim, P., Bremer, R.

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## STN SEARCH

10/664,421

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L3 5 FILE SCISEARCH  
L4 3 FILE LIFESCI  
L5 5 FILE BIOSIS  
L6 5 FILE EMBASE

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L9 0 FILE CAPLUS  
L10 0 FILE SCISEARCH  
L11 0 FILE LIFESCI  
L12 0 FILE BIOSIS  
L13 0 FILE EMBASE

TOTAL FOR ALL FILES

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L15 15 DUP REM L7 (21 DUPLICATES REMOVED)

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L15 ANSWER 1 OF 15 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2006:242229 CAPLUS Full-text

TITLE: Ruthenium half-sandwich complexes bound to protein kinase pim-1

AUTHOR(S): Debreczeni, Judit E.; Bullock, Alex N.; Atilla, G. Ekin; Williams, Douglas S.; Bregman, Howard; Knapp, Stefan; Meggers, Eric

CORPORATE SOURCE: Centre for Structural Genomics, Oxford University, Oxford, OX3 7LD, UK

SOURCE: Angewandte Chemie, International Edition (2006), 45(10), 1580-1585

CODEN: ACIEF5; ISSN: 1433-7851

PUBLISHER: Wiley-VCH Verlag GmbH &amp; Co. KGaA

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Keeping in shape with half a sandwich: The structure of a picomolar organoruthenium inhibitor bound to the ATP-binding site of the protein kinase Pim-1 demonstrates that the ruthenium center has solely a structural role in organizing the organic ligands in the three-dimensional receptor space, thus yielding a structure that is complementary in shape and functional group presentation to the active site of Pim-1.

REFERENCE COUNT: 60 THERE ARE 60 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 2 OF 15 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2005:1328161 CAPLUS Full-text

DOCUMENT NUMBER: 144:228302

TITLE: Rapid Access to Unexplored Chemical Space by Ligand Scanning around a Ruthenium Center: Discovery of Potent and Selective Protein Kinase Inhibitors

AUTHOR(S): Bregman, Howard; Carroll, Patrick J.; Meggers, Eric  
CORPORATE SOURCE: Department of Chemistry, University of Pennsylvania, Philadelphia, PA, 19104, USA

SOURCE: Journal of the American Chemical Society (2006), 128(3), 877-884

CODEN: JACSAT; ISSN: 0002-7863

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB An important objective for the discovery of compds. with unique biol. activities is the development of methods for the synthesis of mol. scaffolds with defined three-dimensional shapes. We are currently investigating the scope of using metal complexes to accomplish this goal. In these compds., the metal center has the role of organizing the orientation of the organic ligands, thus defining the overall shape of the mol. A strategy is presented that allows a rapid scanning of ligands around a ruthenium center in the search for ligand spheres that are complementary in shape and functional group presentation to ATP binding sites of protein kinases. Following this approach, we have identified octahedral ruthenium complexes as potent inhibitors for the protein kinases Pim1, MSK1, and GSK3 $\alpha$ .

REFERENCE COUNT: 52 THERE ARE 52 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 3 OF 15 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2005:283578 CAPLUS Full-text

DOCUMENT NUMBER: 142:331863

TITLE: Crystal structure of human PIM-1 kinase and use of structural information for preparation of molecular scaffolds for kinase ligand development and pharmaceutical applications

INVENTOR(S): Artis, Dean R.; Bremer, Ryan E.; Gillette, Samuel J.; Hurt, Clarence R.; Ibrahim, Prabham L.; Zuckerman, Rebecca L.

PATENT ASSIGNEE(S): Plexxikon, Inc., USA

SOURCE: PCT Int. Appl., 236 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005028624	A2	20050331	WO 2004-US30360	20040915
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
RW:	BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			

US 2005164300 A1 20050728 US 2004-941635 20040915

PRIORITY APPLN. INFO.: US 2003-503277P P 20030915

OTHER SOURCE(S): MARPAT 142:331863

AB Mol. scaffolds for compds. active on protein kinases are described, along with methods for using such scaffolds for kinase ligand development. The use of kinase structural information, exemplified with PIM-1 crystals and structural information can be used for identifying mol. scaffolds and for developing ligands that bind to and modulate particular kinases. More specifically, crystal structure and mol. structural coordinates of human PIM-1 kinase are disclosed. Preparation of compds. modulating PIM-1 and other protein kinases activity (i.e., kinase scaffold library) is reported. These compds. can be used for the treatment of diseases, such as cancer and inflammation.

L15 ANSWER 4 OF 15 MEDLINE on STN DUPLICATE 1

ACCESSION NUMBER: 2005657047 MEDLINE Full-text

DOCUMENT NUMBER: PubMed ID: 16227208

TITLE: Structure and substrate specificity of the Pim-1 kinase.

AUTHOR: Bullock Alex N; Debreczeni Judit; Amos Ann L; Knapp Stefan; Turk Benjamin E

CORPORATE SOURCE: Oxford University, Centre for Structural Genomics, Botnar Research Centre, Oxford OX3 7LD, United Kingdom.

SOURCE: The Journal of biological chemistry, (2005 Dec 16) Vol. 280, No. 50, pp. 41675-82. Electronic Publication: 2005-10-13.

Journal code: 2985121R. ISSN: 0021-9258.

PUB. COUNTRY: United States  
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)  
LANGUAGE: English  
FILE SEGMENT: Priority Journals  
OTHER SOURCE: PDB-1XWS; PDB-2BIL; PDB-2BZK  
ENTRY MONTH: 200602  
ENTRY DATE: Entered STN: 18 Dec 2005  
Last Updated on STN: 8 Feb 2006  
Entered Medline: 7 Feb 2006

AB The Pim kinases are a family of three vertebrate protein serine/threonine kinases (Pim-1, -2, and -3) belonging to the CAMK (calmodulin-dependent protein kinase-related) group. Pim kinases are emerging as important mediators of cytokine signaling pathways in hematopoietic cells, and they contribute to the progression of certain leukemias and solid tumors. A number of cytoplasmic and nuclear proteins are phosphorylated by Pim kinases and may act as their effectors in normal physiology and in disease. Recent crystallographic studies of Pim -1 have identified unique structural features but have not provided insight into how the kinase recognizes its target substrates. Here, we have conducted peptide library screens to exhaustively determine the sequence specificity of active site-mediated phosphorylation by Pim-1 and Pim-3. We have identified the major site of Pim-1 autophosphorylation and find surprisingly that it maps to a novel site that diverges from its consensus phosphorylation motif. We have solved the crystal structure of Pim-1 bound to a high affinity peptide substrate in complexes with either the ATP analog AMP-PNP or the bisindolylmaleimide kinase inhibitor 2-[1-(3-dimethylaminopropyl)-1H-indol-3-yl]-3-(1H-indol-3-yl)maleimide HCl. These structures reveal an unanticipated mode of recognition for basic residues upstream of the phosphorylation site, distinct from that of other kinases with similar substrate specificity. The structures provide a rationale for the unusually high affinity of Pim kinases for peptide substrates and suggest a general mode for substrate binding to members of the CAMK group.

L15 ANSWER 5 OF 15 MEDLINE on STN DUPLICATE 2

ACCESSION NUMBER: 2005173184 MEDLINE Full-text

DOCUMENT NUMBER: PubMed ID: 15657054

TITLE: Pim-1 ligand-bound structures reveal the mechanism of serine/threonine kinase inhibition by LY294002.

AUTHOR: Jacobs Marc D; Black James; Futer Olga; Swenson Lora; Hare Brian; Fleming Mark; Saxena Kumkum

CORPORATE SOURCE: Vertex Pharmaceuticals Incorporated, Cambridge, Massachusetts 02139, USA.. marc\_jacobs@vrtx.com

SOURCE: The Journal of biological chemistry, (2005 Apr 8) Vol. 280, No. 14, pp. 13728-34. Electronic Publication: 2005-01-17. Journal code: 2985121R. ISSN: 0021-9258.

PUB. COUNTRY: United States  
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)  
LANGUAGE: English  
FILE SEGMENT: Priority Journals  
ENTRY MONTH: 200506  
ENTRY DATE: Entered STN: 5 Apr 2005  
Last Updated on STN: 22 Jun 2005  
Entered Medline: 21 Jun 2005

AB Pim-1 is an oncogene-encoded serine/threonine kinase primarily expressed in hematopoietic and germ cell lines. Pim-1 kinase was originally identified in Maloney murine leukemia virus-induced T-cell lymphomas and is associated with multiple cellular functions such as proliferation, survival, differentiation, apoptosis, and tumorigenesis (Wang, Z., Bhattacharya, N., Weaver, M., Petersen, K., Meyer, M., Gapter, L., and Magnuson, N. S. (2001) J. Vet. Sci. 2, 167-179). The crystal structures of Pim-1 complexed with staurosporine and adenosine were determined. Although a typical two-domain serine/threonine protein kinase fold is observed, the inter-domain hinge region is unusual in both sequence and conformation; a two-residue insertion causes the hinge to bulge away from the ATP-binding pocket, and a proline residue in the hinge removes a conserved main chain hydrogen bond donor. Without this hydrogen bond, van der Waals interactions with the hinge serve to position the ligand. The hinge region of Pim-1 resembles that of phosphatidylinositol 3-kinase more closely than it does other protein kinases. Although the phosphatidylinositol 3-kinase inhibitor LY294002 also inhibits Pim -1, the structure of the LY294002.Pim-1 complex reveals a new binding mode that may be general for Ser/Thr kinases.

L15 ANSWER 6 OF 15 SCISEARCH COPYRIGHT (c) 2006 The Thomson Corporation on STN

ACCESSION NUMBER: 2005:1224092 SCISEARCH Full-text  
 THE GENUINE ARTICLE: 989EE  
 TITLE: Structural basis of inhibitor specificity of the human  
 protooncogene proviral insertion site in Moloney murine  
 leukemia virus (PIM-1) kinase  
 AUTHOR: Bullock A N; Debreczeni J E; Fedorov O Y; Nelson A;  
 Marsden B D; Knapp S (Reprint)  
 CORPORATE SOURCE: Univ Oxford, SGC, Botnar Res Ctr, Oxford OX3 7LD, England  
 (Reprint); Univ Leeds, Sch Chem, Leeds LS2 9JT, W  
 Yorkshire, England  
 alex.bullock@sgc.ox.ac.uk; judit.debreczeni@sgc.ox.ac.uk;  
 oleg.fedorov@sgc.ox.ac.uk; a.s.nelson@leeds.ac.uk;  
 brian.marsden@sgc.ox.ac.uk; stefan.knapp@sgc.ox.ac.uk  
 COUNTRY OF AUTHOR: England  
 SOURCE: JOURNAL OF MEDICINAL CHEMISTRY, (1 DEC 2005) Vol. 48, No.  
 24, pp. 7604-7614.  
 ISSN: 0022-2623.  
 PUBLISHER: AMER CHEMICAL SOC, 1155 16TH ST, NW, WASHINGTON, DC 20036  
 USA.  
 DOCUMENT TYPE: Article; Journal  
 LANGUAGE: English  
 REFERENCE COUNT: 56  
 ENTRY DATE: Entered STN: 15 Dec 2005  
 Last Updated on STN: 15 Dec 2005

\*ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS\*

AB The kinase PIM-1 plays a pivotal role in cytokine signaling and is implicated in  
 the development of a number of tumors. The three-dimensional structure of PIM-1 is  
 characterized by an unique hinge region which lacks a second hydrogen bond donor  
 and makes it particularly important to determine how inhibitors bind to this  
 kinase. We determined the structures of PIM-1 in complex with bisindolylmaleimide  
 (BIM-1) and established the structure-activity relationship (SAR) for this  
 inhibitor class. In addition, we screened a kinase targeted library and identified  
 a number of high affinity inhibitors of PIM-1 such as imidazo[1,2-b]pyridazines,  
 pyrazolo[1,5-a]pyrimidines, and members of the flavonoid family. In this paper we  
 present an initial SAR of the identified scaffolds determined on the basis of a  
 thermostability shift assay, calorimetric binding data, and biochemical assays  
 which may find applications for the treatment of PIM-1 dependent cancer types.

L15 ANSWER 7 OF 15 MEDLINE on STN DUPLICATE 3

ACCESSION NUMBER: 2005079313 MEDLINE Full-text  
 DOCUMENT NUMBER: PubMed ID: 15525646  
 TITLE: Structural basis of constitutive activity and a unique  
 nucleotide binding mode of human Pim-1  
 kinase.  
 AUTHOR: Qian Kevin C; Wang Lian; Hickey Eugene R; Studts Joey;  
 Barringer Kevin; Peng Charline; Kronkaitis Anthony; Li Jun;  
 White Andre; Mische Sheenah; Farmer Bennett  
 CORPORATE SOURCE: Departments of Medicinal Chemistry and Immunology and  
 Inflammation, Boehringer Ingelheim Pharmaceuticals, Inc.,  
 Research and Development, 175 Briar Ridge Rd., Ridgefield,  
 CT 06877, USA.  
 SOURCE: The Journal of biological chemistry, (2005 Feb 18) Vol.  
 280, No. 7, pp. 6130-7. Electronic Publication:  
 2004-11-03.  
 Journal code: 2985121R. ISSN: 0021-9258.  
 PUB. COUNTRY: United States  
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)  
 LANGUAGE: English  
 FILE SEGMENT: Priority Journals  
 OTHER SOURCE: PDB-1XQZ; PDB-1XR1  
 ENTRY MONTH: 200504  
 ENTRY DATE: Entered STN: 16 Feb 2005  
 Last Updated on STN: 19 Apr 2005  
 Entered Medline: 18 Apr 2005

AB Pim-1 kinase is a member of a distinct class of serine/threonine kinases consisting of  
 Pim-1, Pim-2, and Pim-3. Pim kinases are highly homologous to one another and share a  
 unique consensus hinge region sequence, ER-PXPX, with its two proline residues separated  
 by a non-conserved residue, but they (Pim kinases) have <30% sequence identity with other  
 kinases. Pim-1 has been implicated in both cytokine-induced signal transduction and the  
 development of lymphoid malignancies. We have determined the crystal structures of apo

Pim-1 kinase and its AMP-PNP (5'-adenylyl-beta,gamma-imidodiphosphate) complex to 2.1-angstroms resolutions. The structures reveal the following. 1) The kinase adopts a constitutively active conformation, and extensive hydrophobic and hydrogen bond interactions between the activation loop and the catalytic loop might be the structural basis for maintaining such a conformation. 2) The hinge region has a novel architecture and hydrogen-bonding pattern, which not only expand the ATP pocket but also serve to establish unambiguously the alignment of the Pim-1 hinge region with that of other kinases. 3) The binding mode of AMP-PNP to Pim-1 kinase is unique and does not involve a critical hinge region hydrogen bond interaction. Analysis of the reported Pim-1 kinase-domain structures leads to a hypothesis as to how Pim kinase activity might be regulated in vivo.

L15 ANSWER 8 OF 15 MEDLINE on STN DUPLICATE 4  
 ACCESSION NUMBER: 2005176667 MEDLINE Full-text  
 DOCUMENT NUMBER: PubMed ID: 15808862  
 TITLE: Crystal structures of proto-oncogene kinase Pim1: a target of aberrant somatic hypermutations in diffuse large cell lymphoma.  
 AUTHOR: Kumar Abhinav; Mandiyan Valsan; Suzuki Yoshihisa; Zhang Chao; Rice Julie; Tsai James; Artis Dean R; Ibrahim Prabha; Bremer Ryan  
 CORPORATE SOURCE: Plexxikon, Inc., 91 Bolivar Drive, Berkeley, CA 94710, USA.  
 SOURCE: Journal of molecular biology, (2005 Apr 22) Vol. 348, No. 1, pp. 183-93.  
 Journal code: 2985088R. ISSN: 0022-2836.  
 PUB. COUNTRY: England: United Kingdom  
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)  
 LANGUAGE: English  
 FILE SEGMENT: Priority Journals  
 OTHER SOURCE: PDB-1YWV; PDB-1YXS; PDB-1YXT; PDB-1YXU; PDB-1YXV; PDB-1YXX  
 ENTRY MONTH: 200506  
 ENTRY DATE: Entered STN: 6 Apr 2005  
 Last Updated on STN: 10 Jun 2005  
 Entered Medline: 9 Jun 2005

AB Pim1, a serine/threonine kinase, is involved in several biological functions including cell survival, proliferation, and differentiation. While pim1 has been shown to be involved in several hematopoietic cancers, it was also recently identified as a target of aberrant somatic hypermutation in diffuse large cell lymphoma (DLCL), the most common form of non-Hodgkin's lymphoma. The crystal structures of Pim1 in apo form and bound with AMPPNP have been solved and several unique features of Pim1 were identified, including the presence of an extra beta-hairpin in the N-terminal lobe and an unusual conformation of the hinge connecting the two lobes of the enzyme. While the apo Pim1 structure is nearly identical with that reported recently, the structure of AMPPNP bound to Pim1 is significantly different. Pim1 is unique among protein kinases due to the presence of a proline residue at position 123 that precludes the formation of the canonical second hydrogen bond between the hinge backbone and the adenine moiety of ATP. One crystal structure reported here shows that changing P123 to methionine, a common residue that offers the backbone hydrogen bond to ATP, does not restore the ATP binding pocket of Pim1 to that of a typical kinase. These unique structural features in Pim1 result in novel binding modes of AMP and a known kinase inhibitor scaffold, as shown by co-crystallography. In addition, the kinase activities of five Pim1 mutants identified in DLCL patients have been determined. In each case, the observed effects on kinase activity are consistent with the predicted consequences of the mutation on the Pim1 structure. Finally, 70 co-crystal structures of low molecular mass, low-affinity compounds with Pim1 have been solved in order to identify novel chemical classes as potential Pim1 inhibitors. Based on the structural information, opportunities for optimization of one specific example are discussed.

L15 ANSWER 9 OF 15 MEDLINE on STN DUPLICATE 5  
 ACCESSION NUMBER: 2006119928 MEDLINE Full-text  
 DOCUMENT NUMBER: PubMed ID: 16508102  
 TITLE: Expression, purification, crystallization and preliminary crystallographic analysis of human Pim-1 kinase.  
 AUTHOR: Qian Kevin C; Studts Joey; Wang Lian; Barringer Kevin; Kronkaitis Anthony; Peng Charline; Baptiste Alistair; LaFrance Roger; Mische Sheenah; Farmer Bennett  
 CORPORATE SOURCE: Department of Medicinal Chemistry, Boehringer Ingelheim Pharmaceuticals Inc., Research and Development, Ridgefield,

SOURCE: CT 06877, USA.. kqian@rdg.boehringer-ingelheim.com  
 Acta crystallographica. Section F, Structural biology and  
 crystallization communications [electronic resource], (2005  
 Jan 1) Vol. 61, No. Pt 1, pp. 96-9. Electronic  
 Publication: 2004-12-02.  
 Journal code: 101226117. E-ISSN: 1744-3091.  
 PUB. COUNTRY: England: United Kingdom  
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)  
 LANGUAGE: English  
 FILE SEGMENT: Priority Journals  
 ENTRY MONTH: 200605  
 ENTRY DATE: Entered STN: 2 Mar 2006  
 Last Updated on STN: 16 May 2006  
 Entered Medline: 15 May 2006

AB Pim kinases, including Pim-1, Pim-2 and Pim-3, belong to a distinctive serine/threonine protein-kinase family. They are involved in cytokine-induced signal transduction and the development of lymphoid malignancies. Their kinase domains are highly homologous to one another, but share low sequence identity to other kinases. Specifically, there are two proline residues in the conserved hinge-region sequence ERPXPX separated by a residue that is non-conserved among Pim kinases. Full-length human Pim-1 kinase (1-313) was cloned and expressed in *Escherichia coli* as a GST-fusion protein and truncated to Pim-1 (14-313) by thrombin digestion during purification. The Pim-1 (14-313) protein was purified to high homogeneity and monodispersity. This protein preparation yielded small crystals in the initial screening and large crystals after optimization. The large crystals of apo Pim-1 enzyme diffracted to 2.1 Å resolution and belong to space group P6(5), with unit-cell parameters  $a = b = 95.9$ ,  $c = 80.0$  Å,  $\beta = 120$  degrees and one molecule per asymmetric unit.

L15 ANSWER 10 OF 15 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:878475 CAPLUS Full-text  
 DOCUMENT NUMBER: 141:345636  
 TITLE: Crystal structures of human pim-1 kinase complexes with ligands and their binding sites and applications in drug screening and design  
 INVENTOR(S): Jacobs, Marc L.; Hare, Brian; Swenson, Lovorka  
 PATENT ASSIGNEE(S): Vertex Pharmaceuticals Incorporated, USA  
 SOURCE: PCT Int. Appl., 219 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004090106	A2	20041021	WO 2004-US10345	20040401
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
RW:	BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			

PRIORITY APPLN. INFO.: US 2003-460843P P 20030404  
 US 2004-552526P P 20040312

AB The present invention relates to the X-ray anal. of crystalline mols. or mol. complexes of human Pim-1. The present invention also relates to Pim-1-like binding pockets. The present invention provides a computer comprising a data storage medium encoded with the structure coordinates of such binding pockets. This invention also relates to methods of using the structure coordinates to solve the structure of homologous proteins or protein complexes. In addition, this invention relates to methods of using the structure coordinates to screen for and design compds., including inhibitory compds., that bind to Pim-1 protein, Pim-1 protein complexes, or homologues thereof. The invention also relates to crystallizable compns. and crystals comprising Pim-1 protein, Pim-1 protein complexes

with adenosine, staurosporine or 2-(4-morpholinyl)-8-phenyl-4H-1-benzopyran-4- one and methods to produce these crystals.

L15 ANSWER 11 OF 15 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:252622 CAPLUS Full-text

DOCUMENT NUMBER: 140:283386

TITLE: Crystal structure of human PIM-1 kinase and complexes with AMP-PNP and use in drug screening and design

INVENTOR(S): Bremer, Ryan; Ibrahim, Prabha; Kumar, Abhinav; Mandiyan, Valsan; Milburn, Michael V.

PATENT ASSIGNEE(S): Plexxikon, Inc., USA

SOURCE: PCT Int. Appl., 217 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004024895	A2	20040325	WO 2003-US29415	20030916
WO 2004024895	A3	20050609		
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
US 2004171062	A1	20040902	US 2003-377268	20030228
CA 2503905	AA	20040325	CA 2003-2503905	20030916
AU 2003272548	A1	20040430	AU 2003-272548	20030916
US 2004142864	A1	20040722	US 2003-664421	20030916
EP 1558751	A2	20050803	EP 2003-754735	20030916
R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK			
PRIORITY APPLN. INFO.:			US 2002-411398P	P 20020916
			US 2002-412341P	P 20020920
			US 2002-360651P	P 20020228
			US 2003-437929P	P 20030102
			WO 2003-US29415	W 20030916
AB	The invention relates to development of ligands for PIM- 1 and to the use of crystal structures of PIM- 1. A crystal structure of human PIM-1 serine kinase is described that was determined by X-ray crystallog. Atomic coordinates for human PIM-1 and its complex with AMP-PNP are provided. The use of PIM-1 crystals and structural information can be used for identifying mol. scaffolds and for developing ligands that bind to and modulate PIM-1 and other PIM kinases. These ligands can be used as drugs.			

L15 ANSWER 12 OF 15 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2005:60754 CAPLUS Full-text

Correction of: 2004:1036571

DOCUMENT NUMBER: 142:233342

Correction of: 142:16836

TITLE: Sequences of human schizophrenia related genes and use for diagnosis, prognosis and therapy

INVENTOR(S): Liew, Choong-Chin

PATENT ASSIGNEE(S): Chondrogene Limited, Can.

SOURCE: U.S. Pat. Appl. Publ., 156 pp., Cont.-in-part of U.S. Ser. No. 802,875.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 29

PATENT INFORMATION:



PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2004241727	A1	20041202	US 2004-812731	20040330
US 2004014059	A1	20040122	US 2002-268730	20021009
US 2005191637	A1	20050901	US 2004-803737	20040318
US 2005196762	A1	20050908	US 2004-803759	20040318
US 2005196763	A1	20050908	US 2004-803857	20040318
US 2005196764	A1	20050908	US 2004-803858	20040318
US 2005208505	A1	20050922	US 2004-803648	20040318
US 2004265869	A1	20041230	US 2004-812716	20040330
US 2005208519	A1	20050922	US 2004-989191	20041115
PRIORITY APPLN. INFO.:			US 1999-115125P	P 19990106
			US 2000-477148	B1 20000104
			US 2002-268730	A2 20021009
			US 2003-601518	A2 20030620
			US 2004-802875	A2 20040312
			US 2004-812731	A2 20040330
			WO 2004-US20836	A2 20040621

AB The present invention is directed to detection and measurement of gene transcripts and their equivalent nucleic acid products in blood. Specifically provided is anal. performed on a drop of blood for detecting, diagnosing and monitoring diseases using gene-specific and/or tissue-specific primers. The present invention also describes methods by which delineation of the sequence and/or quantitation of the expression levels of disease-specific genes allows for an immediate and accurate diagnostic/prognostic test for disease or to assess the effect of a particular treatment regimen. [This abstract record is one of 3 records for this document necessitated by the large number of index entries required to fully index the document and publication system constraints.].

L15 ANSWER 13 OF 15 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:117251 CAPLUS Full-text

DOCUMENT NUMBER: 140:163892

TITLE: Preparation of pyrrolo[2,3-b]pyrazines as kinase inhibitors for treatment of neurodegenerative and proliferative disorders

INVENTOR(S): Meijer, Laurent; Vierfond, Jean-Michel; Mettey, Yvette

PATENT ASSIGNEE(S): Centre National De La Recherche Scientifique (Cnrs), Fr.

SOURCE: Eur. Pat. Appl., 35 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

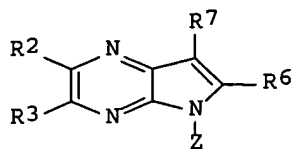
FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

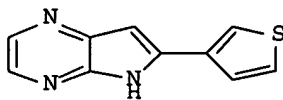
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1388541	A1	20040211	EP 2002-292019	20020809
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK				
CA 2495060	AA	20040226	CA 2003-2495060	20030808
WO 2004016614	A2	20040226	WO 2003-EP9515	20030808
WO 2004016614	A3	20040506		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2003271566	A1	20040303	AU 2003-271566	20030808
EP 1527077	A2	20050504	EP 2003-753362	20030808
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
JP 2006502137	T2	20060119	JP 2004-528508	20030808
PRIORITY APPLN. INFO.:			EP 2002-292019	A 20020809
			WO 2003-EP9515	W 20030808

OTHER SOURCE(S): MARPAT 140:163892

GI



I



II

AB Title aloisine analogs I [wherein R2 and R3 = independently H or (un)substituted alkyl; R6 = (un)substituted aryl or (aryl)cycloalkyl; R7 = H, alkyl, halo(alkyl), propenyl, cycloalkylmethyl, or arylmethyl; Z = H or CH3] were prepared as inhibitors of cyclin dependent kinases (CDKs) and glycogen synthase kinase 3 (GSK-3) inhibitors. For example, reaction of 2-methylpyrazine with 3-thiophenecarbonitrile in the presence of diisopropylamine and BuLi in THF gave II. The latter inhibited CDK1/cyclin B, CDK5/p25, and GSK-3 $\alpha/\beta$  with IC50 values of 2.30  $\mu$ M, 1.00  $\mu$ M, and 0.80  $\mu$ M, resp. Thus, I and their pharmaceutical compns. are useful for treating or preventing neurodegenerative disorders, such as Alzheimer's disease and Parkinson's disease, and proliferative disorders (no data).

REFERENCE COUNT: 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

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ACCESSION NUMBER: 2004061350 EMBASE Full-text  
TITLE: Protein kinases in drug discovery and development.  
AUTHOR: Gill A.  
CORPORATE SOURCE: A. Gill, Department of Medicinal Chemistry, Astex Technology, 436 Cambridge Sci. Park, Milton Road, Cambridge, CB4 0WE, United Kingdom. a.gill@astex-technology.com  
SOURCE: Drug Discovery Today, (1 Jan 2004) Vol. 9, No. 1, pp. 16-17. .  
Refs: 1  
ISSN: 1359-6446 CODEN: DDTOFS  
PUBLISHER IDENT.: S 1359-6446(03)02932-5  
COUNTRY: United Kingdom  
DOCUMENT TYPE: Journal; Conference Article  
FILE SEGMENT: 037 Drug Literature Index  
039 Pharmacy  
LANGUAGE: English  
ENTRY DATE: Entered STN: 4 Mar 2004  
Last Updated on STN: 4 Mar 2004  
DATA NOT AVAILABLE FOR THIS ACCESSION NUMBER

L15 ANSWER 15 OF 15 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2002:954429 CAPLUS Full-text  
DOCUMENT NUMBER: 138:147177  
TITLE: Aloisines, a New Family of CDK/GSK-3 Inhibitors. SAR Study, Crystal Structure in Complex with CDK2, Enzyme Selectivity, and Cellular Effects  
AUTHOR(S): Mettey, Yvette; Gompel, Marie; Thomas, Virginie; Garnier, Matthieu; Leost, Maryse; Ceballos-Picot, Irene; Noble, Martin; Endicott, Jane; Vierfond, Jean-Michel; Meijer, Laurent  
CORPORATE SOURCE: Faculte de Medecine et de Pharmacie, Poitiers, 86005, Fr.  
SOURCE: Journal of Medicinal Chemistry (2003), 46(2), 222-236  
CODEN: JMCMAR; ISSN: 0022-2623  
PUBLISHER: American Chemical Society  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
OTHER SOURCE(S): CASREACT 138:147177

AB Cyclin-dependent kinases (CDKs) regulate the cell cycle, apoptosis, neuronal functions, transcription, and exocytosis. The observation of CDK deregulations in various pathol.

situations suggests that CDK inhibitors may have a therapeutic value. In this article, we report on the identification of 6-phenyl[5H]pyrrolo[2,3-b]pyrazines (alosisines) as a novel potent CDK inhibitory scaffold. A selectivity study performed on 26 kinases shows that alosisine A is highly selective for CDK1/cyclin B, CDK2/cyclin A-E, CDK5/p25, and GSK-3 $\alpha/\beta$ ; the two latter enzymes have been implicated in Alzheimer's disease. Kinetic studies, as well as the resolution of a CDK2-alosisine cocrystal structure, demonstrate that alosisines act by competitive inhibition of ATP binding to the catalytic subunit of the kinase. As observed with all inhibitors reported so far, alosisine interacts with the ATP-binding pocket through two hydrogen bonds with backbone nitrogen and oxygen atoms of Leu 83. Alosisine inhibits cell proliferation by arresting cells in both G1 and G2.

REFERENCE COUNT: 84 THERE ARE 84 CITED REFERENCES AVAILABLE FOR THIS  
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